

Effective countermeasures against conventional war and terrorist threats. Protection against collateral civilian damage and contamination in conventional, chemical and nuclear attack, with nuclear deterrence against conventional warfare which, as science and history prove beyond doubt, costs more lives than nuclear deterrence. The media who profit from censoring out both effective civil defense knowledge and the effective, safe, escalation-deterred nuclear deterrence of conventional warfare (as the W79 did in Europe in the 1980s), deliberately promulgate terror for cash, catering to politically-correct hate-based pseudo-science bigoted fashions.

Sunday, May 17, 2015

In 1,881 burns cases in Hiroshima, only 17 (or 0.9 percent) were due to ignited clothing and 15 (or 0.7%) were due to the firestorm flames

The 1979 U. S. Congress Office of Technology Assessment report, "The Effects of Nuclear War", claims in Table 5 that 7 cal/sq cm is lethal in a megaton explosion. In fact, exposed personnel with warning to duck and cover require - even when wearing light summer clothing - 73 cal/cm sq to produce a 50% incidence of blistered skin, which only develops at 24 hours after the explosion:

Personnel Risk and Casualty Criteria for Nuclear Weapons Effects (U), ACN 4260 (DASIAC 17827, AD 516440), United States Army Combat Developments Command, 332 pp., 2 August 1971. (C)

CDC NUCLEAR AND THERMAL RADIATION CRITERIA				
<u>New Thermal Radiation Criteria</u>				
<u>Risk Criteria for Burns Under Summer Uniforms to Warned, Exposed Personnel</u>				
<u>Time to Ineffectiveness</u>	<u>Casualties due to 2nd Degree Burns</u>			
	<u>% Incidence</u>	<u>10KT cal/cm²</u>	<u>100KT cal/cm²</u>	<u>1000KT cal/cm²</u>
24. hr	50	38	53	73

Personnel Risk and Casualty Criteria for Nuclear Weapons Effects (U),
ACN 4260 (DASIAC 17827, AD 516440), United States Army Combat Develop-
ments Command, 332 pp., 2 August 1971. (C)

U. S. Strategic Bombing Survey's Medical Division report, *The Effects of Atomic Bombs on Health and Medical Services in Hiroshima and Nagasaki*, March 1947, summarized burns data:

Pages 24-27: "The fires particularly in Hiroshima apparently built up more slowly than has been encountered in cities that were subjected to heavy incendiary raids. This gave persons more time to escape from the damaged or demolished buildings. ...

"A few secondary burns resulted from primary flaming of clothing but many people reported such instances in which they were able to beat the fires out without sustaining burns of the underlying skin. ... the thicker the clothing was the more likely it was to give complete protection against flash burns."

Samuel Glasstone and Philip J. Dolan, *The Effects of Nuclear Weapons*, U. S. Department of Defense, 3rd ed., 1977, paragraphs 12.14, 12.17, and 12.22, pages 545-7: "The high incidence of flash burns caused by thermal radiation among both fatalities and survivors in Japan was undoubtedly related to the light and scanty clothing being worn, because of the warm summer weather ...

... The death rate in Japan was greatest among individuals who were in the open at the time of the explosions; it was less for persons in residential (wood-frame and plaster) structures and least of all for those in concrete buildings. These facts emphasize the influence of circumstances of exposure on the casualties ... Had they been forewarned and knowledgeable about areas of relative hazard and safety, there would probably have been fewer casualties even in structures that were badly damaged."



KENSHI HIRATA

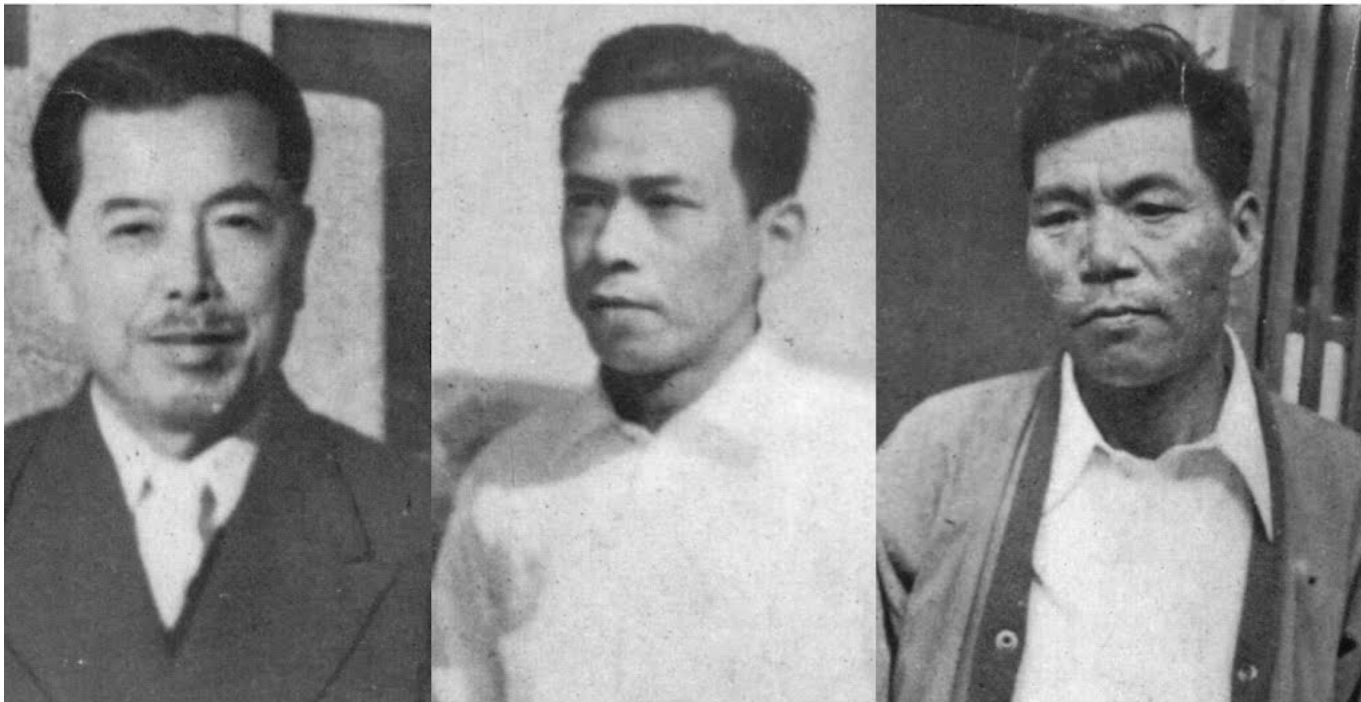


TSUTOMU YAMAGUCHI



SHIGEYOSHI MORIMOTO



**TSUITARO DOI****SHINJI KINOSHITA****MASAO KOMATSU****TAKEJIRO NISHIOKA****AKIRA IWANAGA****SAKAJIRO MISHIMA**

Robert Trumbull - the *New York Times* Pacific and Asia war correspondent, 1941-79 who had been in Iwo Jima - documented the facts about the people above (who all survived the Hiroshima nuclear explosion on 6 August 1945, travelled to Nagasaki and survived the nuclear explosion there as well on 9 August) in his 1957 book *Nine Who Survived Hiroshima and Nagasaki: Personal Experiences of Nine Men who*

Lived Through Both Atomic Bombings. Here are their experiences and ages on 9 August 1945:

Kenshi Hirata, 26, accountant at Mitsubishi Shipbuilding Company, Hiroshima (Trumbull pp. 25, 61, and 119): “through an open window what looked like a golden lightning flash ... had blown up out of the earth. The weird light was everywhere. I immediately thought of an air-raid, and hurled myself prostrate in the passage.’ Hirata’s quick action probably saved him serious injury, if not his life. ... Because it was the middle of summer, which is exceptionally hot in southern Japan, most of the people of Hiroshima were very thinly clad that morning, so they had less than ordinary protection against burns, Hirata observed. ... [Back in Nagasaki] ‘I shouted to my aged father ... ‘Lie face downward!’ In the immediate moment I was expecting that terrific explosion blast and roar.’ ... Kenshi and his father were unharmed. ‘But in two or three minutes ... I saw people running out of their houses, holding their hands over injuries on their heads, faces, and bodies. Most of these were wounds caused by flying pieces of glass.”

Tsutomu Yamaguchi, 29, Mitsubishi ship designer who died in 2010, aged 93 (Trumbull pp. 28 and 109): “Suddenly there was a flash like the lighting of a huge magnesium flare,’ Yamaguchi recalls. The young ship designer was so well drilled in air-raid precaution techniques that he reacted automatically. He flung his hands to his head, covering his eyes with his fingers and stopping his ears with his two thumbs. Simultaneously he dropped to the ground, face down. ... ‘As I prostrated myself, there came a terrific explosion’ ... [The left side of his face and arm facing the fireball were burned, and he returned to Nagasaki, experiencing the second nuclear explosion on the sixth-floor of the headquarters office of Mitsubishi.] Spelling out the danger of flying glass, he urged them to keep windows open during an air-raid alert, and at the instant of the flash to seize at once upon any shelter available ... the second A-bomb confirmed young Yamaguchi’s words, exploding in a huge ball of fire about a mile away. Yamaguchi’s lecture ... was not lost upon his colleagues. With the young designer’s words still fresh in their minds, they leaped for the cover of desks and tables. ‘As a result,’ said Yamaguchi, ‘my section staff suffered the least in that building. In other sections there was a heavy toll of serious injuries from flying glass’.”

Shigeyoshi Morimoto, 46, maker of kites for air defense of Japanese ships, used his Hiroshima experience to take cover in Nagasaki after seeing the flash, before the windows were blasted in. **Tsutarō Doi**, 47, was on his Hiroshima hotel bed, a thin floor mattress called a “futon” when he saw the explosion flash (Trumbull pages 42 and 106-7): “I quickly rolled over and covered my head with the futon ... The floor of the room and my futon were covered with tiny bits of shattered glass. I noticed that I had a slight cut on one arm, and another on the leg, where I wasn’t covered. ... [He returned home to Nagasaki] “Doi was telling his wife in detail about the bomb. ‘If you ever see that flash,’ he said, ‘immediately prostrate yourself on the floor, or the ground if you are outside. ...’ As he was saying these words, the windows lighted as if giant searchlights had been turned directly into the house. ... Mrs Doi startled, jumped to her feet impulsively and turned to run out of the house. Doi grabbed her and pulled her and the baby down as the blast wave shattered all the glass in the little cottage and ripped off the wood and paper sliding doors. As the flimsy house steadied Doi opened his eyes, and saw that the interior of the room was a wreck. But neither he nor his wife nor the baby was hurt.”

Shinji Kinoshita, 50, was hit by falling roof slabs in a Hiroshima warehouse but returned home to Nagasaki and was just outside the door of his family home when the bomb fell (Trumbull p105): “he was momentarily blinded by a flash that seemed to cover the sky. Like the other survivors of the Hiroshima attack, Kinoshita realized at once what the strange, blinding light meant, and reacted without a second’s hesitation. He threw himself face first on the ground, at the same time shouting into the house, ‘Cover yourself with futons!’”

Masao Komatsu, 40, was hit by falling beam in a Hiroshima warehouse and was on board a train in Nagasaki when the bomb fell (Trumbull, p101): “the interior of the coach was bathed in a stark, white light. Komatsu immediately dived for the floor. ‘Get down!’ he screamed at the other passengers. Some recovered sufficiently from the daze of the blinding light to react promptly to his warning. Seconds later came the deafening crack of the blast, and a shock wave that splintered all the windows on both sides of the train. The passengers who had not dived under the seats were slashed mercilessly from waist to head by glass flying at bullet speed.”

Takejiro Nishioka, 55, publisher of Nagasaki’s leading newspaper in 1945 who became Governor of the Nagasaki Prefecture in 1957. In Hiroshima on business on 6 August 1945, he survived the first nuclear explosion and noted the delay of the blast wave after the visible flash. When he returned to Nagasaki he was not allowed to publish the facts, and only survived by diving into an air raid shelter when he saw the flash after a single B-29 appeared over the city. He explained (Trumbull, p92):

“I had observed in Hiroshima that when the flash came, there would be a few seconds before it was followed by the blast wave ... I have often bitterly regretted the law that gagged me as a newspaperman, and forced me to confine my communications to the governor’s ear alone.”

Japan only permitted civil defense advice against nuclear attack to be published after the second nuclear attack on Nagasaki, which was too late. Even at ground zero, the blast wave was delayed after the first flash because of the height of burst, so quick reactions could limit exposure to flying glass. Proof of the efficiency of duck and cover advice against the blast wind and flying debris was given by Nagasaki’s police chief Mizuguchi, who had been told Nishioka’s advice by the Nagasaki governor and had passed it to his first-grade middle school student son, who was with three friends in Daikoku-Machi street, Nagasaki, when the flash occurred (Trumbull pp. 114-5):

“The police chief’s son remembered his father’s warning at once. Hauling his friend with him by the hand, he dashed for a shelter on the pavement ... The two boys in the shelter were saved; the other two, who stayed on the street, seemed to vanish ... Mizuguchi’s wife, at the same moment, happened to be standing just outside their house, under the eaves, with a baby in her arms. The instant she saw the flash, she recalled her husband’s words of the night before and rushed back into the house. She opened a closet and, with the baby still in her arms, crowded inside and pulled shut the sliding door. ... The room, and the area outside the house, was covered with innumerable sharp, pointed slivers of shattered glass. Clearly, she had escaped serious injury by shutting herself in the closet. ...

“Nishioka was bitterly upbraided by Hiromasa Nakamura, chief of the foreign affairs sections of the Nagasaki Prefectural Office, for not briefing other government officials on the happenings at Hiroshima and the efficacy of bomb shelters. ... ‘I could only tell him that I was indeed anxious to tell everyone in Nagasaki what I had learned, but that if I had done so, I would have been liable for violation of the law against spreading ‘wild rumors’, and could have been arrested and convicted.”

Akira Iwanaga (25, engineer at Mitsubishi ship yard, a friend and colleague of Yamaguchi). After surviving at Hiroshima, he arrived in Nagasaki just as the bomb exploded, aboard the same train as another double-survivor, Masao Komatsu (Trumbull p101). **Sakajiro Mishima**, 36, dockside worker at Mitsubishi ship yard, also survived both nuclear explosions. Yamaguchi’s friend **Kuniyoshi Sato**, along with **Masako Suga** and her baby boy and **Hiroshi Shibuta** were all also double-survivors of both Hiroshima and Nagasaki. Another double-survivor is Mrs **Kazuko Sadamaru** (aged 20 in 1945), who was interviewed aged 80 in 2005 in *The Observer* (London, Sunday 24 July 2005). She was a nurse in a Nagasaki’s Ohmura Naval Hospital but on 5 August 1945 had to accompany a soldier to Hiroshima by train, where she survived and returned to Nagasaki before the second bomb:

“I never wanted to speak out about my experience. I haven’t published anything or talked to anyone because I didn’t want anyone to know. I only became a nurse because I wanted to devote myself to patients and the country. I never dreamt Japan would lose the war. I worked and worked believing Japan would win. I cannot forget the events on 6 and 9 August 1945. I saw the flashes and the mushroom clouds of both A-bombs dropped on Hiroshima and Nagasaki. So many were exposed to the A-bomb but I am one of the few people who have experienced the two bombs, and still I am in good health. It was fate that I was there, but I had good luck in that I survived both bombs.” Despite being close to both bombs, she suffered only a temporary abnormal white blood cell count and loss of hair.”

“No statistically significant increase in major birth defects or other untoward pregnancy outcomes was seen among children of survivors. ... The incidence of major birth defects (594 cases or 0.91%) among the 65,431 registered pregnancy terminations for which parents were not biologically related accords well with a large series of contemporary Japanese births at the Tokyo Red Cross Maternity Hospital, where radiation exposure was not involved and overall malformation frequency was 0.92%. No untoward outcome showed any relation to parental radiation dose or exposure. ... Since many birth defects, especially congenital heart disease, are not detected in the neonatal period, repeat examinations were conducted at age eight to ten months. Among the 18,876 children re-examined at that age, 378 had one or more major birth defect (2.00%), compared with 0.97% within two weeks of birth. Again, there was no evidence of relationships to radiation dose.”

– RERF, *Birth defects among the children of atomic-bomb survivors* (Hiroshima and Nagasaki nuclear weapons explosion irradiated survivors).

The Hiroshima-Nagasaki nuclear attacks RERF life-span study (LSS) from 1950 to 2000 for leukemia deaths and from 1958 to 1998 for solid cancer occurrence showed that for 49,204 survivors in the leukemia study group, there were an excess of 94 leukemia deaths attributed to radiation, risk of 94/49,204 or **0.191%** (above the natural number of cancers in the unexposed control group), and an excess of 848 solid (tumour) cancer deaths in 44,635 survivors, a risk of 848/44,635 or **1.90%**. In each case, the excess radiation cancer risk was smaller than the natural risk of 0.22% for leukemia and 15.69% for solid (tumour) cancer deaths. It is significant that the natural cancer death risk was higher than the radiation cancer death risk for both leukemia and solid tumours unless the dose exceeded about 1 Gray (100 R or 100 cGy). E.g., 48% of leukemia deaths from doses of 10-100 R were due to radiation and 52% were natural (a bigger risk than radiation). Likewise, only 16% of solid tumour cancer deaths for doses of 10-100 R were due to radiation (84% were natural)

Glasstone and Dolan, "The Effects of Nuclear Weapons," 1977, paras 12.14, 12.17, 12.22, pp. 545-7:

"The high incidence of flash burns caused by thermal radiation among both fatalities and survivors in Japan was undoubtedly related to the light and scanty clothing being worn, because of the warm summer weather ... If there had been an appreciable cloud cover or haze below the burst point, the thermal radiation would have been attenuated somewhat and the frequency of flash burns would have been much less. Had the weather been cold, fewer people would have been outdoors and they would have been wearing more extensive clothing. Both the number of people and individual skin areas exposed to thermal radiation would then have been greatly reduced, and there would have been fewer casualties from flash burns. ... The death rate in Japan was greatest among individuals who were in the open at the time of the explosions; it was less for persons in residential (wood-frame and plaster) structures and least of all for those in concrete buildings. These facts emphasize the influence of circumstances of exposure on the casualties produced by a nuclear weapon and indicate that shielding of some type can be an important factor in survival. ... Had they been forewarned and knowledgeable about areas of relative hazard and safety, there would probably have been fewer casualties even in structures that were badly damaged."

The 1957 edition of *The Effects of Nuclear Weapons*, published just before *Operation Plumbbob* results were in, acknowledged that clothing had provided protection from flash burns in Hiroshima and Nagasaki, but then resorted to the usual obfuscation tactic of claiming that clothing can be ignited and so flame burns can occur, **although it is explained in U.S. Strategic Bombing Survey reports published in 1946 and 1947 that survivors easily beat out burning clothing without sustaining burns (you can extinguish a candle flame with your fingers without severe burns). Anti-nuclear groups traditionally since 1947 have used as "examples" of nuclear burns case studies not from Hiroshima and Nagasaki, but from American gasoline-soaked clothing ignition in automobile burns accident victims, where severe burns resulted. This is similar to experiences in WWII, Korea and Vietnam with clothing drenched with burning napalm. In such cases, you cannot beat out the burning clothing before severe burns result, but nuclear weapons do not produce the same results** as we will prove in this post.

In peacetime gasoline-soaked clothing automobile accident burns casualties, typically a huge number of specialists have used many gallons of blood plasma, bandages, etc., and the casualty has ended up dying anyhow. This peacetime experience is then falsely used as an example applicable to nuclear weapons thermal radiation. Glasstone and Dolan, *The Effects of Nuclear Weapons*, 1977 seem to go along with this by ignoring any protection giving by clothing (or city skyline shadows, for that matter) in their misleading predictions of burns. They implicitly assume that a nuclear weapon is detonated over a nudist result in an unobstructed desert, like the Nevada test site. Although 1953 Nevada tests proved that clothing does provide protection from thermal radiation, in 1957 *Plumbbob* tests, a highly contrived and misleading situation was used to roast pigs in their jackets. Pigs were tied down to tables and given anesthetic so they were unable to roll out the flames of ignited clothing. Many suffered severe burns and died of shock. Because the reports were classified for security reasons, democratic debate about the reasonableness of the assumptions used in this test was never possible. The few scientists involved tended to suffer **groupthink conformity**, in which the heated, often rude, arguments needed to break down hardened dogma were taboo.

Nevertheless, some of the classified reports continued to show that, if people wear clothes or are in a modern hi-rise city, the Nevada test site experiences with pigs strapped to tables in a radial line to ground zero are irrelevant:

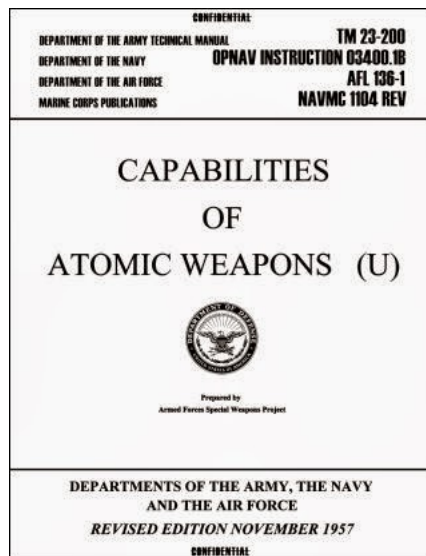


Table 6-2. Critical Radiant Exposures for Burns Under Clothing

(Expressed in cal/cm² incident on outer surface of cloth)

Clothing	Burn	1 KT	100 KT	10 MT
Summer Uniform.....	1°	8	11	14
(2 layers).....	2°	20	25	35
Winter Uniform.....	1°	60	80	100
(4 layers).....	2°	70	90	120

6-4

CDC NUCLEAR AND THERMAL RADIATION CRITERIA

New Thermal Radiation Criteria

Risk Criteria for Burns Under Summer Uniforms to Warned, Exposed Personnel

<u>Time to Ineffectiveness</u>	<u>Casualties due to 2nd Degree Burns</u>			
	<u>% Incidence</u>	<u>10KT cal/cm²</u>	<u>100KT cal/cm²</u>	<u>1000KT cal/cm²</u>
24. hr	50	38	53	73

Personnel Risk and Casualty Criteria for Nuclear Weapons Effects

ACN 4260, U. S. Army Combat Developments Command Institute of Nuclear Studies, August 1971



(8) Scores of persons throughout all sections of the city were questioned concerning the ignition of clothing by the flash from the bomb. Replies were consistent that white silk seldom was affected although black and some other colored



PHOTO 36 IX. Shows partly burned coat of boy who was in open near City Hall (Building 28) 3,800 feet from AZ.

ected, although black, and some other colored silk, charred and disintegrated. Numerous instances were reported in which designs in black or other dark colors on a white silk kimono were charred so that they fell out, but the white part was not affected. These statements were confirmed by United States medical officers who had been able to examine a number of kimonos available in a hospital. Ten school boys were located during the study who had been in school yards about 6,200 feet east and 7,000 feet west, respectively, from AZ. These boys had flash burns on the portions of their faces which had been directly exposed to rays of the bomb. The boys' stories were consistent to the effect that their clothing, apparently of cotton materials, "smoked," but did not burst into flame. Photo 36 shows a boy's coat that started to smolder from heat rays at 3,800 feet from AZ.

(3300 from GZ) 24

THE UNITED STATES
STRATEGIC BOMBING SURVEY

**THE EFFECTS
OF
THE ATOMIC BOMB
ON
HIROSHIMA, JAPAN**

(USSBS Report 92)
Volume II

Physical Damage Division

THE UNITED STATES
STRATEGIC BOMBING SURVEY

THE EFFECTS
OF
ATOMIC BOMBS
ON
HIROSHIMA AND NAGASAKI

CHAIRMAN'S OFFICE
30 June 1946

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1946

The flash heat was intense enough to cause fires, despite the distance of the fireball from the ground. Clothing ignited, though it could be quickly beaten out, telephone poles charred, thatched roofs of houses caught fire. In Hiroshima, the explosion started hundreds of fires almost simultaneously, the most distant of which was found 13,700 feet from ground zero; this, however, probably started when a building with a thatched roof collapsed onto a hot charcoal fire. Fires were started directly by flash heat in such easily ignitable substances as dark cloth, paper, or dry-rotted wood, within about 3,500 feet of ground zero; white-painted, concrete-faced or cement-stuccoed structures reflected the heat and did not ignite. A cedar bark roof and the top of a dry-rotted wooden platform 5,200 feet west of ground zero, were reported to have been ignited by the bomb flash. The majority of initial fires in buildings, however, were started by secondary sources (kitchen charcoal

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EFFECTS OF THERMAL RADIATION IN JAPAN

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7.70 A distinctive feature of the thermal radiation burns was their sharp limitation to exposed areas of the skin facing the center of the explosion. For this reason they were sometimes called "profile burns" (Fig. 7.70). The phenomenon was due to the fact that most of the radiation received had traveled in a straight line from the ball of fire, and so only regions that were directly exposed were affected. A striking illustration of this behavior was that of a man writing before a window. His hands were seriously burned, but his face and neck, which were not covered, suffered only slight burns because the angle of entry of the radiation through the window was such as to place them in partial shadow.

7.71 Although flash burns were largely confined to exposed parts of the body, there were a few cases where such burns occurred through one, and very occasionally more, layers of clothing. Instances of this kind, however, were observed only near to ground zero where fairly large amounts of radiant energy were received. When burns did occur through clothing, these generally involved regions where the clothes were tightly drawn over the skin, at the elbows and shoulders, for example. Such burns may have been due to contact with the hot fabric,



Figure 7.70 Partial protection against thermal radiation produced "profile" burns (1.23 miles from ground zero). The cap was sufficient to protect the top of the head against flash burn.

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THERMAL RADIATION AND ITS EFFECTS



Figure 7.71. The skin under the areas of contact with clothing is burned. The protective effect of thicker layers can be seen on the shoulders and across the back.

as described in § 7.57, rather than to the direct effect of radiation. Areas over which the clothing fitted loosely, so that an air space separated it from the skin, were generally unharmed by the radiation (Fig. 7.71).

7.72 There were many instances in which burns occurred through black clothing, but not through white material worn by the same individuals (Fig. 7.72). This was attributed to the reflection of thermal radiation by white or other light-colored fabrics, whereas materials of dark color absorbed radiation, became hot, and so caused contact burns. In some cases black outer clothing actually burst into flame and ignited the undergarments, so that flame burns resulted. It should be recalled, however, as mentioned in § 7.57, that white clothing does not always necessarily provide protection against thermal radiation. Some materials of this kind transmit enough radiation to permit flash burning of the skin to occur.

OBFUSCATION: NO NUMBERS FOR PROTECTIVE FACTORS!!

S. Glasstone, The Effects of Nuclear Weapons, 1957

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4.1.2 Factors Contributing to the Greater Degree of Thermal Protection in the Field.

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This document consists of 64 pages
No. 196 of 295 copies, Series A

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OPERATION UPSHOT-KNOTHOLE

Project 8.5

**THERMAL RADIATION PROTECTION AFFORDED
TEST ANIMALS BY FABRIC ASSEMBLIES**

REPORT TO THE TEST DIRECTOR

by
A. F. Osterling and Staff

UNCLASSIFIED

REGRADED BY *DA Form 1575-1002-2, 2/14/24*
BY *W. G. J. 235000* July 1955

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Quartermaster Research and Development Laboratories
Army Medical Service Graduate School
Walter Reed Army Medical Center
University of Rochester Atomic Energy Project

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There are several conditions encountered in the field, especially at the higher energy levels, but not duplicated in the laboratory (at least not up to the present time) that may account for the fact that like amounts of thermal energy did not produce comparable results in the laboratory and in the field. First, the thermal energy is delivered much more rapidly with the explosion of an atomic bomb than it is in the laboratory. Second, due to smoke obscuration the animals in the field actually received a smaller percentage of the total energy delivered than they did in the laboratory. Third, the blast wave following the explosion tended to extinguish flames and remove char, whereas no such wave was present in the laboratory tests. Fourth, where the heat reached the fabric layer next to the skin, uniform drapes (or spacing) provided additional protection in the field.

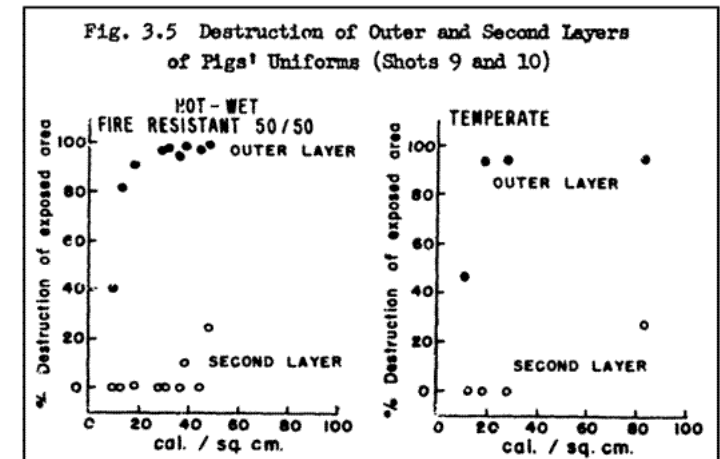
(2) Motion pictures of clothed animals, exposed to 50.0 and 33.5 cal/cm² on Shots 9 and 10 respectively, showed heavy clouds

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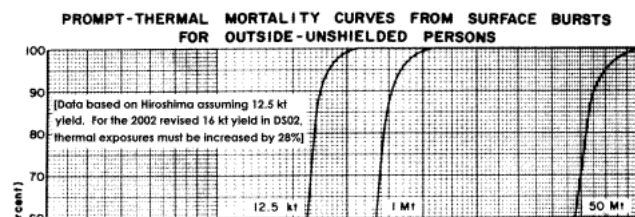
of black smoke enveloping the animals within 120 ms of the explosion.

(3) The blast wave following the explosion, which has not been duplicated in laboratory applications of thermal energy, has two possible protective effects. First, it can be expected to extinguish flames induced by the radiation in assemblies not treated for fire resistance, thus removing a source of high heat. Although the blast wave may not actually extinguish the flame in all cases,* it can be expected in general to have this effect. Second, the blast wave would tend to remove any char which, if allowed to remain, would act as a heat reservoir and increase the likelihood of a severe burn.

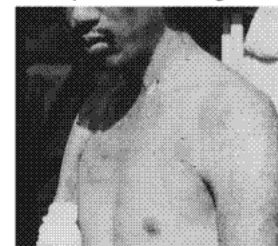
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L. Wayne Davis, Donald L. Summers, William L. Baker, and James A. Keller, Prediction of Urban Casualties and the Medical Load from a High-Yield Nuclear Burst, DC-FR-1060, The Dikewood Corporation

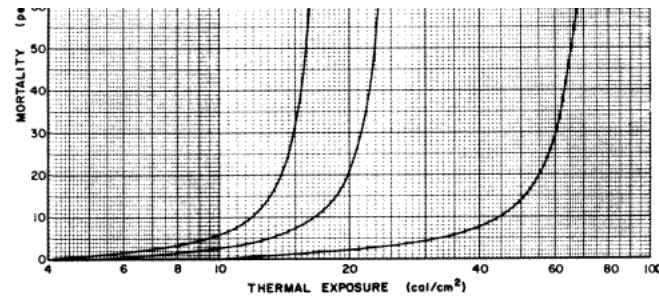


Shirt protection: Nagasaki



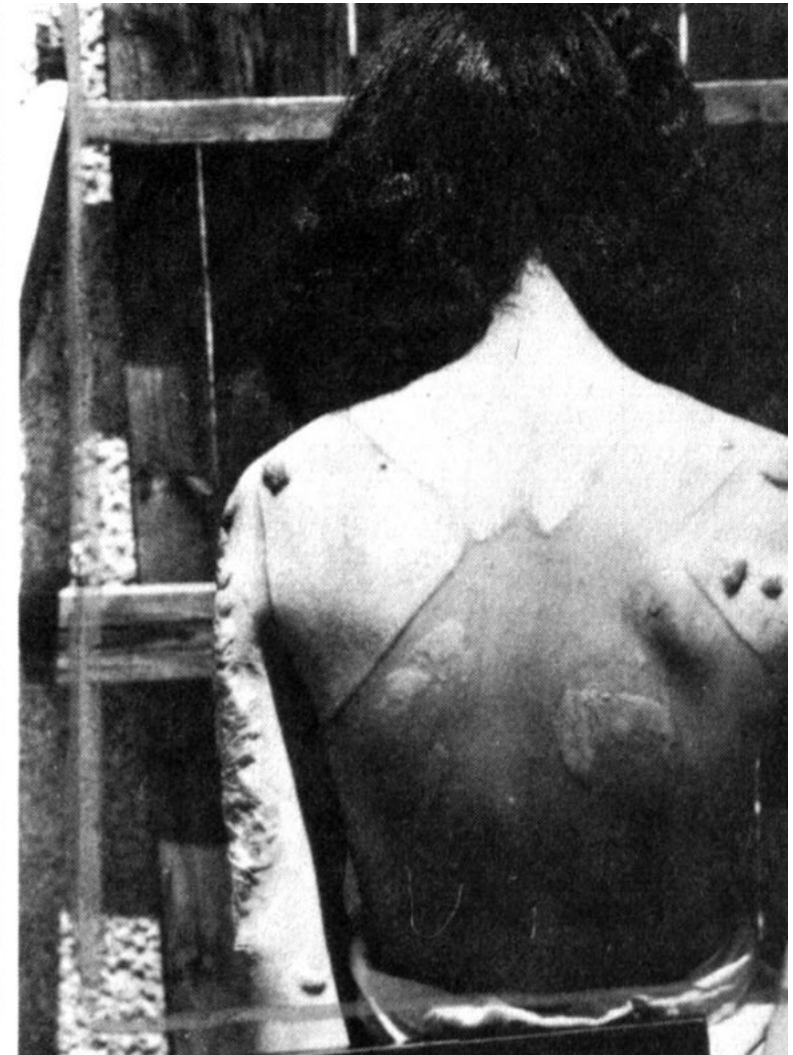
Uniform protection: Hiroshima, "lethal" 6.7 cal/cm² !!!





Even very light clothing massively reduced mortality in Hiroshima and Nagasaki, disproving the bare skin assumptions in Glasstone and Dolan's "Effects of Nuclear Weapons", 1957-77.

This patient (photographed by Japanese 2 October 1945) was about 6,500 feet from ground zero when the rays struck him from the left. His cap was sufficient to protect the top of his head against flash burns.





Thermal burns on rear edge of bare legs facing GZ, 0.90 km from GZ, Hiroshima 15 Oct. 45



The photo on the left is the burns received to bare skin at just 900 metres from ground zero in Hiroshima, as photographed in mid-October 1945 at the Hiroshima First Army Hospital, Ujina branch. The photo on the right shows the protection afforded by clothing in the Hiroshima attack. Burns scars occur on the arms, called keloids, caused by malnutrition and infection of burns during prolonged recovery.

Source: *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings*, by The Committee for the Compilation of Materials on Damage Caused by the Atomic Bombs in Hiroshima and Nagasaki (706 pp, Basic Books).

After studying hundreds of Hiroshima and Nagasaki survivors, **Dr. Irving L. Janis reported that the bright flash arriving at light speed ahead of the blast wave allowed them to take cover in Hiroshima and Nagasaki, a fact ignored in computer models of blast casualties (*Psychological Effects of Atomic Bombing*, Industrial College of the Armed Forces, Publ May 1954, page 4):**

“A substantial proportion of the survivors reacted automatically to the brilliant flash of the A-bomb as a danger signal, even though they knew nothing about the existence of that time. Some who were not located near ground zero took prompt action – such as falling to a prone position – which minimized exposure to the blast and to the secondary effects. In many other cases, however, the opportunity to minimize the danger was missed because the individual remained fixed or because the action which was taken proved to be inadequate.”

Dr G. Andrew Mickley explains how workers who returned to Nagasaki after surviving at Hiroshima were able to use their experience to survive the second nuclear explosion to prepare, in his paper “Psychological Factors in Nuclear Warfare”, Chapter 8 in *Textbook of Military Medicine; Part I, Warfare, Weaponry, and the Casualty; Volume 1, Consequences of Nuclear Warfare*, U.S. Army, 1989, pp. 184-5:

“The benefits of training are confirmed by the remarkable experiences of nine persons who survived the Hiroshima bombing and then fled to Nagasaki in time for the second attack. They remembered very well what they had done that allowed them to live, and they quickly instructed others in Nagasaki: “Yamaguchi's lecture on A-bomb precautions, he pointed out to his colleagues. With the young designer's words still fresh in their minds [on 9 August 1945, in Nagasaki] they leaped for the cover of desks and tables. “As a result, my section staff suffered the least in that building. In other sections there was a heavy toll of serious injuries from flying glass.” (Quoted from Robert Trumbull, *Nine who survived Hiroshima and Nagasaki*, New York: E. P. Dutton and Co., 1957.)”

Robert Trumbull's *Nine who survived Hiroshima and Nagasaki* (E. P. Dutton and Co., N.Y., 1957) interviewed nine of the sixteen who survived *both* the Hiroshima and Nagasaki nuclear explosions (Nagasaki immediately by train after surviving at Hiroshima). The double-survivor Takejira Nishioka (a newspaper publisher) observed in Hiroshima that the blast wave was delayed after the flash, Governor of Nagasaki Prefecture, tried (but failed) to get permission to send out a warning prior to the Nagasaki nuclear attack *that people can avoid being knocked down or hit by horizontally-blown blast if they duck and cover on seeing the very bright visible flash. Duck and cover also provides shielding from thermal and nuclear radiation, because it increases the fraction of the dose which is attenuated through obstructions before reaching a person, as was known in 1949 (HO 225/14, The advantage of lying prone in reducing the dose of gamma atomic bomb).*

The advice was experimentally verified in the 37 kt *Plumbbob-Priscilla* nuclear test of 1957, where a standing dummy and a lying dummy were actually filmed being hit by the blast wave.

overpressure blast wave. *The lying dummy was completely unmoved, but the standing dummy was accelerated to 21 ft/s in just 0.5 seconds, and blasted a distance of humans the feet rotate forward (because the centre of the body mass is above mid-height) so head-first impacts at the maximum velocity are prevented by the laws of physics. The head is from the vertical fall, and even this is delayed for the blast duration, giving at least 0.5 second of extra time to use the arms to protect the head.* Even in the 43 *Smoky* nuclear test where the dummies were in a “blast precursor” desert sandstorm with a very much high dynamic pressure, the lying dummy was only blown half the distance. In 1964, the 0.5 kt *Snowball* explosion confirmed the data and showed that goats are a proxy for humans in translation experiments (DASA-1859). Experiments prove that humans survived a blast which gave them a velocity of 51-78 ft/sec and a decelerative tumbling displacement of 59-151 ft (I. G. Bowen, D. R. Richmond and C. S. White, *Translation Waves*, “Minutes of the Tripartite Technical Cooperation Program, Panel N-1, Sub-group N, 14-16 March 1963”, Lovelace Foundation for Medical Education and Research, 1963, p. 57). In a built-up area, most people will never even reach the peak velocity observed in desert tests, because they will be stopped by obstructions after typically 10 ft, before they have even reached the peak velocity. Therefore, any injury will be less serious, due to the smaller velocity at the time of impact.

On 27 September 1956 dummy men were exposed to the 15 kt *Buffalo-1* nuclear test at Maralinga (similar yield to Hiroshima). Dummies standing facing the burst were blown 10% of this distance (peak overpressure, psi). But the dummies lying facing radially towards or away from ground zero were only blown 10% of this distance, because of (1) the smaller area of contact and dust, and (2) the greater area in contact with the ground, providing frictional resistance against drag. References: W. J. H. Butterfield, E. G. Hardy and E. R. Drake, *Report on dummy men exposed in the open, Operation Buffalo*, Atomic Weapons Research Establishment, report AWRE-T2/59, 1959 National Archives documents DEFE 16/16 *Report on blast on dummies and scout cars, Operation Antler*, report AWRE-T6/59, ES 5/270, 1959, and the research on the reduced blast displacement of lying dummies exposed to large overpressures, DASA 2710.

George Monbiot, *The Guardian*, Tuesday 5 April 2011: “*The unpalatable truth is that the anti-nuclear lobby has misled us all: I’ve discovered that when the facts don’t fit the movement resorts to the follies of cover-up they usually denounce. ... Dr Caldicott is the world’s foremost anti-nuclear campaigner. ... Caldicott’s response ... a report by the Academy of Sciences, which she urged me to read. I have now done so – all 423 pages. It ... strongly contradicts her claims ... For the last 25 years anti-nuclear campaigners have used the figures for deaths and diseases caused by the Chernobyl disaster, and parading deformed babies like a medieval circus. They now claim 985,000 people have been killed by radiation [which has a half life of only 8 days, so cattle can be taken out of fields and given winter feed while it decays, or else the milk can be dry powdered or used to make cheese. If people must drink contaminated milk, they can block iodine-131 uptake by daily 130 mg potassium iodate tablets, which nuclear industries stock for emergency distribution].*”

Weapons effects exaggerations against civil defense are escalated by successive journalists and editors, who increase circulation against ever increasing noise levels from rival journals by publishing “justified” by the allegedly moralistic pseudo-ethical assumption that “the ends justify the means”. Environmentalists who worship subjective, fashionable groupthink like a religion scream and conflict about the effects of radiation. Like a Gordian Knot, any attempt to pull apart this scam “orthodoxy” just hardens the dogma, because its proponents do not believe in it on the basis of hard objective science, but on the basis of a moralistic piece of patronising high-horse politics. As Glasstone pointed out in the 1950 *Effects of Atomic Weapons*, it is like the gas effects fear-mongering exaggerations propaganda before WWII (Glasstone destroyed civilization and lied that there was no defense).

“The unsuspecting layman naturally swallows it whole ... but they do want to get their manuscript accepted for the feature page of the *Daily Drivel* or the *Weekly Wail*. ... must pile on the horrors thick.” – James Kendall, *Breathe Freely!*, quoted by Fair (ADA488135, linked here).

An early example of “ends justify the means” exaggeration of weapons effects is Will Irwin’s 1921 book, *The Next War*, exaggerating gas war into the end of civilization to “justify” 1920s disarmament. A chorus of others, before appeasers like Chamberlain stepped in to “guarantee peace in our time” by shaking Hitler’s hand (while Britain only rearmed at a fraction of the rate of Germany, so as “not to increase the danger of war”:

“These weapons often appear mysterious and sinister to the general public. I think that much of the responsibility for this feeling falls on our government which, by placing great restriction on the production of weapons by military officers, has fostered this miasma of ignorance. ... the government perpetuates the mysteriousness of these weapons by its restrictions. Until I retired as Commanding General, Research and Development Command, I was under such restrictions. ... An uninformed public will not support urgently needed research and development on these weapons, nor will it be prepared to stand against us. ... Only knowledge of these weapons will make them less terrifying.

“In 1959, after hearings on research in CBR (Chemical, Biological, and Radiological Warfare), the Committee on Science and Astronautics of the U.S. House of Representatives stated that. ‘There is a public understanding of the dangers and uses of CBR if proper support is to be given to our defenses and countermeasures’. ... The attitude of our government not only prevents the public from learning about the dangers of CBR, but is greatly responsible for the failure of our military personnel to learn about them. ... The military, in our country, are not a caste apart, but simply an extension of the civilian populace.”

- Brigadier General J.H. Rothschild, *Tomorrow's Weapons*, McGraw-Hill, N.Y., 1964, pp. xi-xiii.

“Is it really necessary for peace on this planet that an increasing number of governments have the power to destroy the lives of millions of Americans on short notice? Defense not see that such power also provides a temptation to use it, at least for blackmail? Mr Margolis points repeatedly and emphatically to the public apathy with it. But, in any case, if history is any guide, public apathy toward a measure would in no way prove the undesirability thereof.”

- Dr Eugene P. Wigner, “Civil Defense: Wigner on Project Harbor”, *Bulletin of the Atomic Scientists*, February 1966, pp. 21-22 (quotation on page 22).

Attacks on civil defense are akin to attacking home fire insurance, hospitals, ambulances, seatbelts, lifeboats, and other damage reducing precautions on the false allegation that they deflect attention from prevention, or that they are “inefficient” and “the survivors would envy the dead”. The “false sense of security” and “recklessness” historically is shown to occur not with civil defense, but with a lack of either appeasement or a maximum amount of damage, escalating the problems. **“At no time did Hitler threaten to initiate war against France and England. He simply threatened to use the technique he used is such an obvious prototype for a future aggressor armed with H-bombs that it is of extreme value to all who are concerned with the problem of maintaining a secure world ...”** – Herman Kahn, *On Thermonuclear War*, 1960, p. 403.

President Barack Obama, Prague, Czech Republic, 5 April 2009:

“In a strange turn of history, the threat of global nuclear war has gone down, but the risk of a nuclear attack has gone up. More nations have acquired these weapons. ... to buy, build or steal one. Our efforts to contain these dangers are centered on a global non-proliferation regime, but as more people and nations break the rules, we cannot see the center cannot hold.”

Dr Clayton S. White, M.D., “Biological Effects of Blast,” report DASA-1271, 1961, pp. 32-36:

“The area of complete destruction at Hiroshima [the area of the firestorm which developed to a maximum intensity 2-3 hours after the explosion was] about 1.2 miles), a range at which 4-5 psi existed. At this range there was an overall survival of near 90 percent. ... one must not confuse the area of complete destruction of buildings with ‘complete destruction’ of people. ... The gloomy habit of confusing the two concepts is, I am afraid, as prevalent as it is unrealistic and, indeed, untrue. ... Think of the casualties which might have occurred in Hiroshima had the population just been mostly indoors.”

U.S. Strategic Bombing Survey, never-published full May 1947 report 92 on Hiroshima, volume 2, typeset edition pages 126-8 (quoted on pages 176 and 98 of *Hiroshima*).

“Structural damage by blast to multistory, steel- and reinforced concrete-frame structures did not extend beyond 2,000 feet from GZ. The buildings within this radius had an average of 12 percent structural damage. The average for all the buildings of this type in Hiroshima was 8 percent.”

These are modern city buildings. The burned out areas in old photos are congested (a roof to ground area averaging 42% in firestorm areas) wood frame houses. On page 98 of *Zero 1945* quotes the secret 1947 USSBS Hiroshima report, vol 1, pp 13-14 (typeset edition):

“... six persons who had been in reinforced-concrete buildings within 3,200 feet of air zero stated that black cotton blackout curtains were ignited by radiant heat. ... proportion of over 1,000 persons questioned was in agreement that a great majority of the original fires was started by debris falling on kitchen charcoal fires, by fires, or by electric short circuits.”

Note also that formerly secret measurements of the specific activity of fallout show that only about 1% of the crater volume becomes lofted fallout dust, most of which falls back rapidly thus confirmed that there is no significant nuclear winter (cooling) from the cratered dust lofted as fallout. This claim relies on the carbon soot from large-scale firestorms (not just fires) which are sublimated, layer of hygroscopic carbon soot to altitudes where it can be warmed and achieve stable buoyancy, blocking out sunlight from lower altitudes. This contravenes the facts concerning the firestorm which rapidly precipitated the soot. Robock's poorly researched but politically correct (peer-reviewer passed) *Climactic Consequences of Regional Nuclear Conflicts (Atmospheric Environment 2003–2012, 2007)* maintains the nuclear disaster delusion by ignoring all factual data on firestorm dust from Hiroshima and Nagasaki:

The authors assume that *all* targeted cities will produce mass fires with efficient pyroconvective pumping, that these fires will consume basically all available flammable materials in the target cities, and that rainout will only remove 20% of the soot before it reaches the upper atmosphere. These are not valid assumptions, and real-world experimental atmospheric nuclear weapons detonations does not bear them out. ... even Brode's relatively extreme views are incompatible with the bizarre assumptions made in the study, and consequently the many studies that now use its conclusions to model the effects of regional nuclear conflict. The extremely low 20% rainout value is particularly problematic- the authors have no real justification for it other than "because we used it in 1990, and it arguably happens this way in some forest fires." ... Indeed, Nagasaki appears to fit the assumptions made in the study - rainout at Hiroshima seems to have been pretty pronounced (the famous black rain), and Nagasaki failed to experience a full-blown firestorm due to the local topography. In any case, rainout after a nuclear explosion is *not* the same as rainout resulting from a forest fire, as is attested by the 1979 study of rainout following the atomic bombings in Japan. In short, Toon et al. really didn't do their research - at all.

Before quoting the firestorm details from the secret Hiroshima report, it is worth pointing out that all nuclear weapons stockpiled today are much smaller yield MIRV (multiple independently targetable reentry vehicle) heavy fallout weapons tested in the 1950s. Most are relatively little more powerful than the Hiroshima and Nagasaki weapons. Professor Freeman Dyson debunked the popular myths in his 1985 book *Hope* (Harper and Row, New York, pp. 33-41):

"In 1957 ... Nevil Shute Norway published *On the Beach*, a description of mankind wiped out by radiological warfare [he had also previously published guesswork speculations about war in his 1939 novel, *What Happened to the Corbetts*, which incorrectly speculated that bombing would cause a lack of clean water and cause that diseases like cholera to spread]. The translation of apocalyptic disaster into the everyday voices of real people caught the imagination of the world. His book became an international best-seller and was made into a successful film. The book created an enduring myth, a myth which entered consciously or subconsciously into all subsequent thinking about nuclear war. ... Almost all the details are wrong: radioactive cobalt would not substantially increase the yield of hydrogen bombs; fallout would not descend uniformly over large areas but would fall sporadically in space and time; people could protect themselves from the radioactivity ...

"The first generation of hydrogen bombs which were tested in 1952 and 1954 had yields running from ten to fifteen megatons. They were, from a modern point of view, a inconveniently large. ... By the time I paid my first visit to Los Alamos, in the summer of 1956, hydrogen bombs of the twenty-megaton class were already considered too large. The experts I spoke to were working on smaller bombs with lower yields. ... The race toward smaller bombs has been driven by ... the cruise missile and the MIRV (Multiple Independently Targetable Reentry Vehicle). ... As soon as cruise missiles and MIRVs are available, high-yield weapons rapidly become obsolete. ... The central paradox of the arms race is that the public perceives the arms race as giving birth to an endless stream of weapons of ever-increasing destructiveness and ever-increasing destructiveness. There was indeed a race to produce weapons of mass destruction ... Since then the arms race has been running strongly in other directions, away from weapons of mass destruction toward weapons of high precision. ... One consequence of the computer revolutions has been the replacement of big hydrogen bombs by the MIRV and the cruise missile."

In Hiroshima, only 0.9% (17 burns) of 1,881 burns were due to ignited clothing, and only 0.7% (15 burns) were due to burns by firestorm flames!

TABLE 8.3A

Number of Persons with Burns from Different Causes (Tokyo Imperial University's First Survey, October–November 1945)

Distance from Hypocenter (km)	Secondary Burns† From Clothes on Fire	Secondary Burns† By Flame	Total Burns
0.6–1.0	3 (3.3)		89
1.1–1.5		1 (1.1)	327

1.6–2.0	4 (0.5)	4 (1.2)	717
2.1–2.5		6 (0.8)	558
2.6–3.0	5 (0.8)	3 (0.5)	140
3.1–3.5	4 (2.8)	1 (0.7)	41
3.6–4.0	1 (2.4)		4
Total	17 (0.9)	15 (0.7)	1,881

* Primary burns are burns by thermal rays from the A-bomb.

† Secondary burns are burns by fire other than thermal rays.

‡ Figures in parentheses are percentages of incidence.

Source: T. Kajitani and S. Hatano, "Medical survey on acute effects of atomic bomb in Hiroshima," in CRIABC vol. I, p. 522.

Note: there were 5 burns cases within 0.6 km, all primary

TABLE 8.3B

Region of Burns

	Head		Face		Neck		Total	
	Outdoors	Indoors	Outdoors	Indoors	Outdoors	Indoors	Outdoors	Indoors
Number of persons	179 (11.7)*	44 (12.3)	1,030 (67.4)	127 (35.7)	643 (42.1)	78 (21.9)	1,526	355
Total	223 (11.8)		1,157 (61.5)		721 (38.3)		1,881	

* Figures in parentheses are percentages of incidence.

Source: T. Kajitani and S. Hatano, "Medical survey on acute effects of atomic bomb in Hiroshima," in CRIABC vol. I, p. 522.

Above: extract from "Hiroshima and Nagasaki: The Physical, Social and Medical Effects", 1981

by the Japanese Committee for the Compilation of Materials on Damage Caused by Atomic Bombs

Above: of a sample of 1,881 burns cases in Hiroshima surveyed by Tokyo Imperial University in October-November 1945, only 17 (or 0.9 percent) were due to ignited clothing and 15 (or 0.7 percent) were due to the firestorm flames. This disproves the myths of clothing ignition risks and firestorm burns risks from nuclear weapons.

Source: Table 8.2A in *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings*, by The Committee for the Compilation of Materials on Damage Caused by the Atomic Bombs in Hiroshima and Nagasaki (706 pp, Basic Books, Inc., Publishers, New York, 1981). (In Japan, Iwanami Shoten, Publishers.)

SURVIVAL IN WOODEN AND CONCRETE BUILDINGS, HIROSHIMA

TABLE 7.3

*Casualties among the Groups Exposed to the Atomic Bomb inside **Wooden** Houses, Hiroshima*

Name of Building	Structure	Distance and Direction from Hypocenter (km)	Number Exposed	Mortality Rate (%)
Lodging for an itinerant theatrical troupe	Two-story	0.7 E	17	100.0
Second Hiroshima Army Hospital	Single-story	1.0 N	402	75.3

Source: Science Council of Japan, *Genshibakudan Saigai Chōsa Hōkokusho* [SRIABC] (Tokyo: Nihon Gakujutsu Shinkōkai, 1951), p. 25.

TABLE 7.4

*Casualties among the Groups Exposed to the Atomic Bomb inside **Concrete** Buildings, Hiroshima*

Name of Building	Structure	Direction and Distance from Hypocenter (km)	Number Exposed	Mortality Rate (%)

The Bank of Japan, Hiroshima Branch	three-story	0.4 SE	75	57.3
Broadcasting Station	two-story	1.0 E	31	6.5
Communication Bureau	four-story	1.4 N	245	6.1
Japan Red Cross Hospital, Hiroshima	three-story	2.0 S	480	0.4

* While the total number of exposed is known, it has not been possible to determine how many died instantly or soon after the explosion.
Source: Science Council of Japan, *Genshibakudan Saigai Chōsa Hōkokusho* [SRIABC] (Tokyo: Nihon Gakujutsu Shinkōkai, 1951), p. 26.

Above: extract from "Hiroshima and Nagasaki: The Physical, Social and Medical Effects", 1981

Extracts from *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings*, by The Committee for the Compilation of Materials on Damage Caused by the Atomic Bombs in Hiroshima and Nagasaki (706 pp, Basic Books, Inc., Publishers, New York, 1981). Tables 7.3 (casualties in wooden buildings) and 7.4 show that at 1 km from ground zero in Hiroshima the mortality rate was 75.3 percent for the 402 people in the wooden Second Hiroshima Army Hospital, but it was about twelve times smaller, only 6.5%, at the same distance for the modern concrete Hiroshima Broadcasting Station within the Hiroshima firestorm area.

These data prove that being inside the firestorm area was not the determining factor for survival and mortality; concrete buildings ensured survival by providing protection from radiation. **People surviving in concrete buildings could extinguish fires with water (as occurred inside the Bank of Japan, near ground zero, as proved by the secret classified report of the U.S. Strategic Bombing Survey on Hiroshima, evidence which was censored out of the unclassified version Truman published to try to intimidate Russia).**

Table 7.2 in *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings* shows that 580 members of the Labor service group from Otake, Hino Group, were walking on a road at Fukushima-cho, 2.3 km West from Hiroshima, and suffered 9 fatalities (1.6 percent mortality), of which 2 died on the day of the nuclear explosion and the other 5 died within the week. Clothing provided great protection in Hiroshima and Nagasaki:

The Effects of the Atomic Bomb on Hiroshima, Japan, US Strategic Bombing Survey, Pacific Theatre, report 92, volume 2 (May 1947, secret):

Volume one, page 14:

"the city lacked buildings with fire-protective features such as automatic fire doors and automatic sprinkler systems", and pages 26-28 state the heat flash in Hiroshima was only "capable of starting primary fires in exposed, easily combustible materials such as dark cloth, thin paper, or dry rotted wood exposed to direct radiation at distances usually within 4,000 feet of the point of detonation (AZ)."

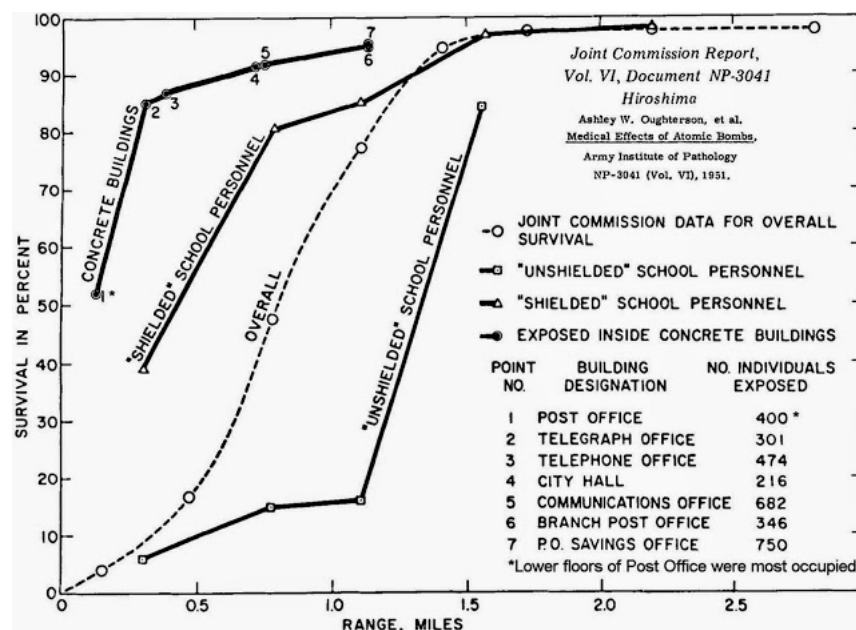
Volume two examines the firestorm and the ignition of clothing by the thermal radiation flash in Hiroshima:

Page 24:

"Scores of persons throughout all sections of the city were questioned concerning the ignition of clothing by the flash from the bomb. ... Ten school boys were located during the study who had been in school yards about 6,200 feet east and 7,000 feet west, respectively, from AZ [air zero]. These boys had flash burns on the portions of their faces which had been directly exposed to rays of the bomb. The boys' stories were consistent to the effect that their clothing, apparently of cotton materials, 'smoked,' but did not burst into flame. ... a boy's coat ... started to smoulder from heat rays at 3,800 feet from AZ."

Page 88:

"Ignition of the City. ... Only directly exposed surfaces were flash burned. Measured from GZ, flash burns on wood poles were observed at 13,000 feet, granite was roughened or spalled by heat at 1,300 feet, and vitreous tiles on roofs were blistered at 4,000 feet. ... six persons who had been in reinforced-concrete buildings within 3,200 feet of air zero stated that black cotton blackout curtains were ignited by radiant heat ... dark clothing was scorched and, in some cases, reported to have burst into flame from flash heat [although as the 1946 USSBS report admits, most immediately beat the flames out with their hands without sustaining injury, because the clothing was not drenched in gasoline, unlike peacetime gasoline tanker road accident victims] ... but a large proportion of over 1,000 persons questioned was in agreement that a great majority of the original fires was started by debris falling on kitchen charcoal fires, by industrial process fires, or by electric short circuits. Hundreds of fires were reported to have started in the centre of the city within 10 minutes after the explosion. Of the total number of buildings investigated [135 buildings are listed] 107 caught fire, and in 69 instances, the probable cause of initial ignition of the buildings or their contents was as follows: (1) 8 by direct radiated heat from the bomb (primary fire), (2) 8 by secondary sources, and (3) 53 by fire spread from exposed [wooden] buildings."



What about long-term radiation effects?

"Up to 1975 a total of 1,838 cases diagnosed as leukemia in both Hiroshima and Nagasaki have been registered. Among these were 512 cases exposed to the atomic bomb (those exposed within 10,000 metres of the explosion), and 256 cases considered to have received more than 1 rad. The yearly chance in the number of leukemia cases showed a peak in 1951 and 1952 and tended to decline thereafter in both cities."

- *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings*, by The Committee for the Compilation of Materials on Damage Caused by the Atomic Bombs in Hiroshima and Nagasaki, page 259.

This is misleading, because it gives only the total number of leukemia cases, not the smaller proportion that are actually due to radiation in the group of 109,000

Hiroshima and Nagasaki persons who were alive in 1950 and have been followed by the National Institute of Health in Japan:



Radiation Effects Research Foundation

A Cooperative Japan-US Research Organization www.rerf.jp/radefx/late_e/cancrisk.html

Table. Excess risk of developing solid cancers in LSS, 1958-1998

Weighted colon dose (Gy)	LSS subjects	Cancers		Attributable risk
		Observed	Estimated excess	
0.005 - 0.1	27,789	4,406	81	1.8%
0.1 - 0.2	5,527	968	75	7.6%
0.2 - 0.5	5,935	1,144	179	15.7%
0.5 - 1.0	3,173	688	206	29.5%
1.0 - 2.0	1,647	460	196	44.2%
>2.0	564	185	111	61.0%
Total	44,635	7,851	848	10.7%



Preston DL, Shimizu Y, et al.: Studies of mortality of atomic bomb survivors. Report 13. Solid cancer and noncancer disease mortality: 1950-1997. Radiation Research 2003; 160:381-407



Preston DL, Ron E, et al.: Solid cancer incidence in atomic bomb survivors: 1958-1998. Radiation Research 2007; 168:1-64



Preston DL, Pierce DA, et al.: Effect of recent changes in atomic bomb survivor dosimetry on cancer mortality risk estimates. Radiation Research 2004; 162:377-89

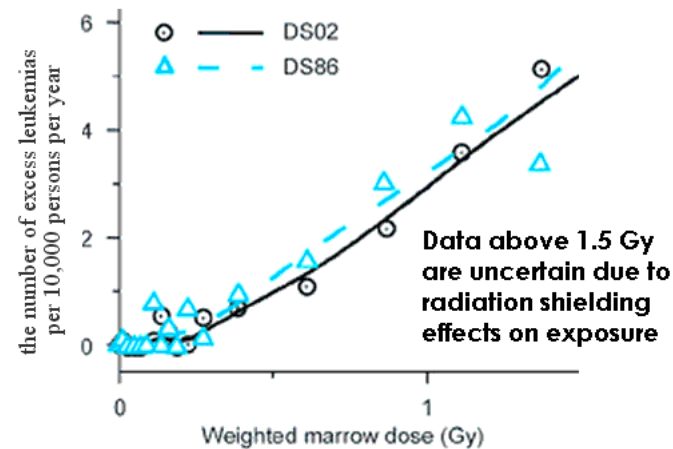


Ron E, Preston DL, et al.: Cancer incidence in atomic-bomb survivors. Part IV: Comparison of cancer incidence and mortality. Radiation Research 1994; 137:98-112

Table. Observed and estimated excess number of leukemia deaths in LSS population, 1950-2000

Weighted marrow dose (Gy)	Subjects	Deaths		Attributable risk
		Observed	Estimated excess	
0.005 - 0.1	30,387	69	4	6%
0.1 - 0.2	5,841	14	5	36%
0.2 - 0.5	6,304	27	10	37%
0.5 - 1.0	3,963	30	19	63%
1.0 - 2.0	1,972	39	28	72%
>2.0	737	25	28	100%
Total	49,204	204	94	46%

Figure 1. DS02 and DS86 non-parametric dose response of leukemia, 1950-2000.
Shown is the sex-averaged risk in 1970 for exposure age 20-39.



Preston DL, Pierce DA, et al.: Effect of recent changes in atomic bomb survivor dosimetry on cancer mortality risk estimates. Radiation Research 2004; 162:377-89



Preston DL, Kusumi S, et al.: Cancer incidence in atomic-bomb survivors. Part III: Leukemia, lymphoma, and multiple myeloma, 1950-1987. Radiation Research 1994; 137:S68-97

Above: the latest data on solid cancers and blood cancers (leukemias) in Hiroshima and Nagasaki, compiled by the Radiation Effects Research Foundation of Japan, show that only 10.7% of solid cancers were due to radiation and only 46% of leukemias were due to radiation. In both Hiroshima and Nagasaki, the majority of cancers were natural, therefore, and were not a result of the nuclear radiation exposure. Contrast these facts to the mythology of the popular media, which is so corrupted by communist and American secrecy based money-spinning fear-mongering exaggerations of radiation and nuclear weapons effects that it is now taboo to tell the honest truth on nuclear matters.

The truth is that you needed between 0.5-1 Gray (50-100 rads) in Hiroshima and Nagasaki to get a leukemia risk from radiation equal to the natural leukemia risk, which is low anyway. Thus, only personnel receiving over about 0.75 Gray (75 rads) who got leukemia were more likely than not to have got the leukemia as a result of the radiation exposure. People getting leukemia who have received less than that massive radiation dose were more likely to have natural cancer, than radiation induced leukemia.

The latest DS02 dosimetry also supports a dose threshold of about 0.1 Gray or 10 rads, below which all leukemias are natural, for the very high dose rate of the initial radiation in Hiroshima and Nagasaki. For low dose rates, as there is more time at a given dose for protein P53 to repair DNA damage caused by radiation (radiation unbinds P53 from its MDM2 inhibitor) so the dose threshold is much larger, about 20 Gray or 2000 rads, as proved by the radium dial painters discussed in Dr Sanders radiation hormesis research book.

For solid cancers, the RERF data show that you need over 2 Gray (200 rads) before the risk of radiation induced cancer equals the natural cancer risk. Therefore, if you get cancer after an exposure to less than 200 rads (or 2 Grays), it is more than 50% probable that the cancer was natural DNA damage due to causes like natural thermal instability (brownian motion impacts of water ions against DNA molecules), not the radiation exposure.

These facts are vital for civil defense and nuclear weapons employment tactics, because they debunk exaggerations due to traditional weapons fear-mongering propaganda. It is a crime to let lies circulate without opposition. The efforts made by liars to shut down arguments they cannot win rationally, using censorship and "shoot the messenger" taboos, are threatening the future of terrorism safeguards. If they succeed, we will return to the age of massive military spending on conventional arms which fail to deter and which therefore lead to world wars. Whether those people are criminally ignorant or insane, they are a danger because their fear-

mongering prevents the widespread objective assessment of serious dangers.

Population recovery rates in nuclear war

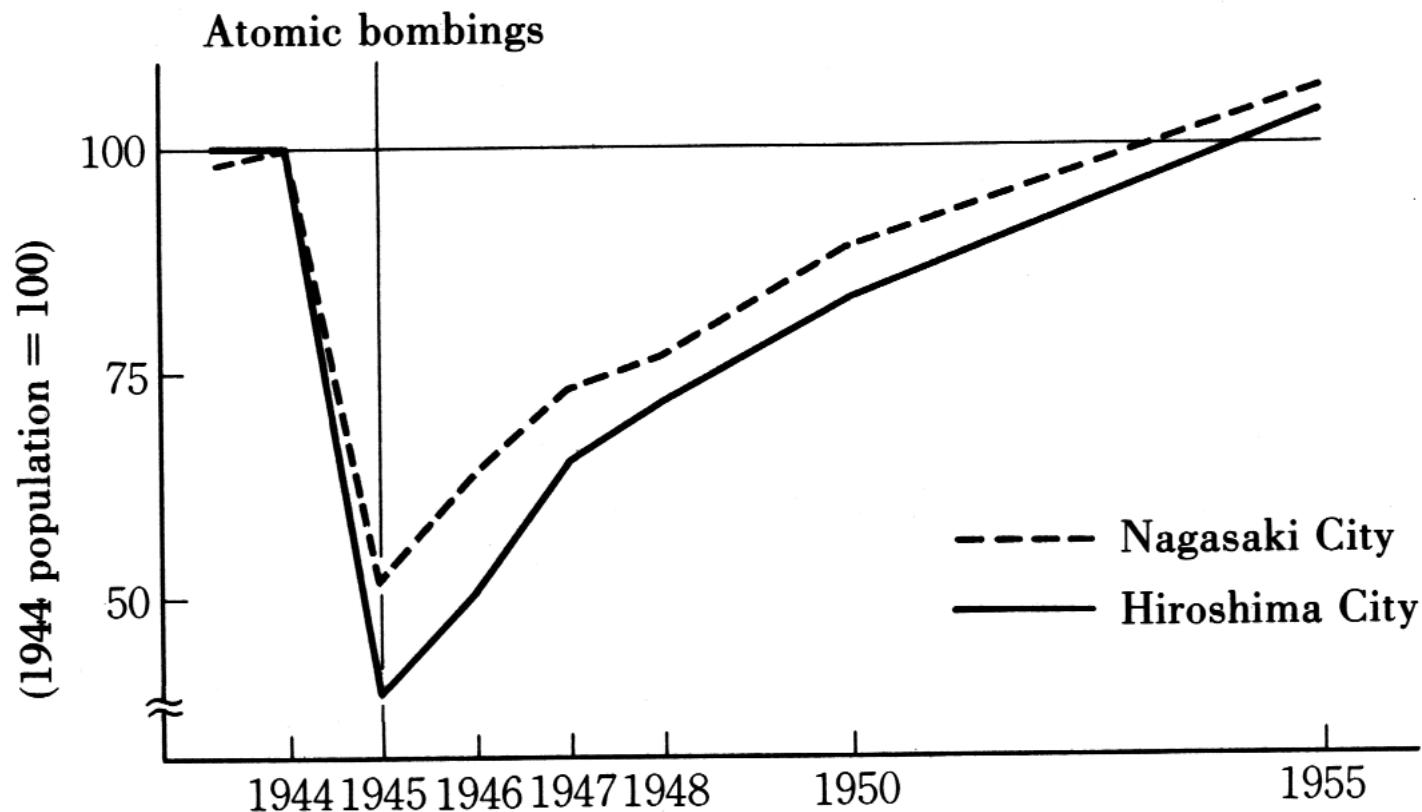


Figure 10.16. Population recovery in Hiroshima and Nagasaki (Hiroshimashi-Nagasaki 1976, p. 52).

Above: extract from "Hiroshima and Nagasaki: The Physical, Social and Medical Effects", 1981 by the Japanese Committee for the Compilation of Materials on Damage Caused by Atomic Bombs

Above: recovery of population in the cities of Hiroshima and Nagasaki following nuclear war (*Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings* Figure 10.16). The total mortality rate in each city was about 25 percent, so **the majority of the population survived the nuclear warfare and rebuilding was rapid, as was the decay rate of the radioactivity. At no time was either city evacuated completely.**

Simon Kuznets, a Nobel laureate in economics, studied economic recovery from war in his classic book *Postwar Economic Growth* (Harvard University Press, 1964), disclosing that *within five years the destroyed cities were exceeding their prewar economy provided that capitalism was embraced: the socialist central planning of East Germany meant that it only achieved 73% of its prewar economy by 1950, compared to 117% for the free capitalist economy of West Germany in 1950.*

Therefore, those who seem to want socialism seem also to want an economic crisis after a nuclear war, by advocating Marxist economics. The strong economy of capitalism enabled support for Western Germany in the Marshall plan, whereas East Germany was looted and heavily taxed by USSR thugs intent on persecution and enslavement. No country can prosper under tyranny. Capitalism works and is an essential component of recovery from war damage. We discussed some aspects of the recovery in Hiroshima and Nagasaki at a previous post linked [here](#), and another linked [here](#).

Robert Jungk carefully investigated the history of the recovery in Hiroshima by interviewing the people involved and collecting first hand reports, and gives further interesting details in his book *Children of the Ashes* (Heinemann, London, 1961):

1. On 31 August 1945: 'the first locally produced and locally printed post-war edition of the *Chugoku Shimbun* was on sale in the streets of Hiroshima ... 'Our darkroom was an air-raid shelter dug into the hillside [which survived of course]', one of the editors remembers, 'but our type had to be cast in the open air, under the sunny sky.'
2. On 7 September 1945, the *Chugoku Shimbun* reported that Hiroshima then had a population estimated to be 130,000.
3. On 10 September 1945, electricity was reconnected to some parts of Hiroshima: 'huts made of planks quickly knocked together ... already had electric light.'
4. On 5 November 1945, the *Chugoku Shimbun* reported that - despite inertia and delays due to 'the rigidity of bureaucratic procedure' which was hindering the recovery rate - a lot of progress was being made:

'*Housing*. The building of houses is to be systematically begun on 15 November. ...

'*Tramways*. At present, ten trams are in commission on the main route, eight on the Miyajima route and five municipal buses. These twenty-three vehicles must cater for an average of 42,000 persons daily.'

Some 70% of the destroyed buildings of Hiroshima had been reconstructed by mid-1949. (Ref.: Research Department, Hiroshima Municipal Office, as cited in *Hiroshima*, Hiroshima Publishing, 1949. Other recovery data are given in U.S. Strategic Bombing Survey, *The Effects of Atomic Bombs on Hiroshima and Nagasaki*, Washington, D.C., 1946, p. 8.)

Examine the post-attack recovery rate in Hiroshima *before* any significant outside help arrived:

7 August (Day 2): Survivors open bridges and roads to pedestrian traffic, clearing away debris:

"The [Hiroshima] prefectural governor issued a proclamation on 7 August, calling for 'a rehabilitation of the stricken city and an aroused fighting spirit ...'. To prevent the spread of rumors and brace morale, 210,000 out-of-town newspapers were brought in daily to replace the destroyed local paper." (Source: U. S. Strategic Bombing Survey, *The Effects of the Atomic Bombs on Hiroshima and Nagasaki*, 19 June 1946, page 9.)

8 August (Day 3): Rail tracks cleared and trains to Hiroshima resumed.

9 August (Day 4): Street trolley bus (electric tram) lines return to service.

1 November (Day 86):

“the population of Hiroshima is back to 137,000. ... The official Japanese figures summed up the building destruction at 62,000 out of a total of 90,000 buildings in the urban area, or 69%. An additional 6,000 or 6.6% were severely damaged, and most of the others showed glass breakage or disturbance of roof tile. These figures show the magnitude of the problem facing the survivors. ... In view of the lack of medical facilities, supplies and personnel, and the disruption of the sanitary system, the escape from epidemics may seem surprising. The experience of other bombed cities in Germany and Japan shows that this is not an isolated case. A possible explanation may lie in the disinfecting action of the extensive fires. In later weeks, disease rates rose, but not sharply.” (Source: U. S. Strategic Bombing Survey, *The Effects of the Atomic Bombs on Hiroshima and Nagasaki*, 19 June 1946, page 9.)

Next, consider what *civil defence* did during the post-attack recovery process to help aid survivors in Nagasaki, subjected to a nuclear explosion just 3 days after Hiroshima:

9 August (Day 1): Emergency rations are brought in to feed 25,000 survivors (though less than the required amount, due to bureaucratic confusion). The survivors lived in the air-raid shelters, which had survived.

10 August (Day 2): Emergency rations are brought in to feed 67,000 survivors: “this represents a remarkable feat of organisation that illustrates the great possibilities of mass feeding.” (Source: Fred C. Ikle, *The Social Impact of Bomb Destruction*, University of Oklahoma Press, 1958, p. 147.)

“On the morning of 10 August [in Nagasaki], police rescue units and workers from the Kawami-nami shipbuilding works began the imperative task of clearing the Omura-Nagasaki pike, which was impassable for 8,000 feet. A path 6 ½ feet wide was cleared despite the intense heat from smouldering fires, and by August 15 had been widened to permit two-way traffic. No trucks, only rakes and shovels, were available for clearing the streets, which were filled with tile, bricks, stone, corrugated iron, machinery, plaster, and stucco. Street areas affected by blast and not by fire were littered with wood. Throughout the devastated area, all wounded had to be carried by stretcher, since no motor vehicles were able to proceed through the cluttered streets for several days. The plan for debris removal required clearance of a few streets leading to the main highway; but there were frequent delays caused by the heat of smouldering fires and by calls for relief work. The debris was simply raked and shoveled off the streets. By 20 August the job was considered complete. The streets were not materially damaged by the bomb nor were the surface or the abutments of the concrete bridges, but many of the wooden bridges were totally or partially destroyed by fire. ... Despite the absence of sanitary measures, no epidemics broke out here. The dysentery rate rose from 25/100,000 to 125/100,000. A census taken on 1 November 1945 found a population of 142,700 in the city [Nagasaki]. ... Of the 52,000 residential units in the city [of Nagasaki] on 1 August, 14,146 or 27.2 percent were completely destroyed (by Japanese count) (11,494 of these were burned); 5,441 or 10.5 percent were half-burned or destroyed; many of the remaining units suffered superficial or minor damage.” (Source: U. S. Strategic Bombing Survey, *The Effects of the Atomic Bombs on Hiroshima and Nagasaki*, 19 June 1946, pages 12-13.)



Hiroshima in October, 1945, two months after the atomic bombing. Main streets were cleared of rubble, but there was only pedestrian traffic.

Hiroshima, ten years later. The area is completely rebuilt.



F. C. Ikle, *The Social Impact of Bomb Destruction*

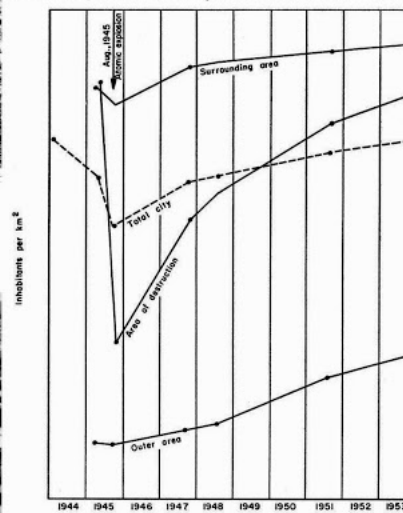
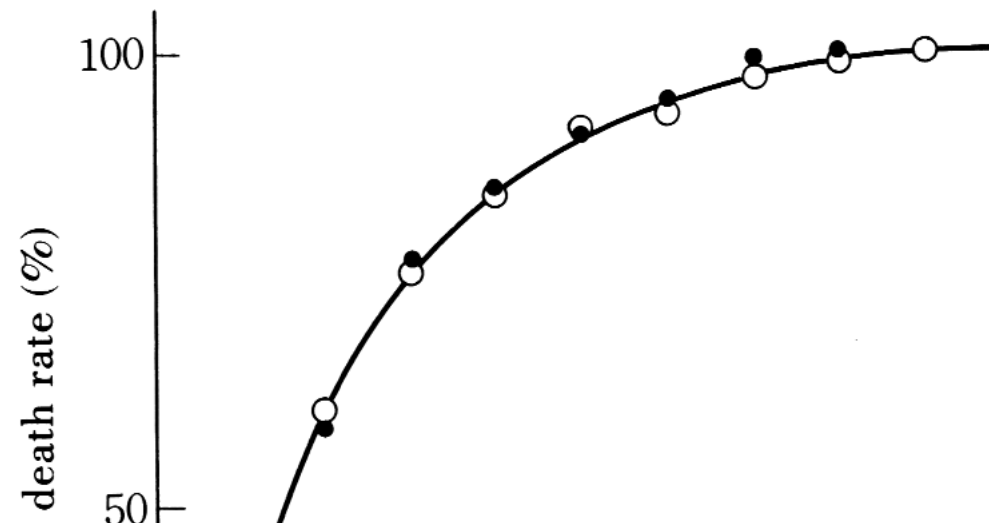


Fig. 12 — Nagasaki, 1944–1953
Population density for areas and total city.

Above: rapid recovery of Hiroshima and Nagasaki (source: Dr Fred C. Ikle's book *The Social Impact of Bomb Destruction*). In addition, the worst firestorm in history, that on Hamburg, which destroyed 48% of the houses in the city and 3% of the population (the wooden medieval area was subject to the firestorm; other areas of brick houses burned more slowly with far fewer casualties) recovered its prewar population by 1950, and had recovered 80% of its building trade within 7 months of the firestorm, while Greater London recovered 98% of its prewar population by 1948 (see pages 16, 163 and 215 of Dr Fred C. Ikle's book *The Social Impact of Bomb Destruction*). Dr Fred C. Ikle's book *The Social Impact of Bomb Destruction*, pages 159 and 163 also discloses that the destruction of a UK city did not spell doomsday: *Coventry's destruction by a massive Nazi air raid on 14-15 November 1940 resulted in 4.5 working days lost per employee, and only 1.3-1.7% of England's population was in full-time civil defense.*



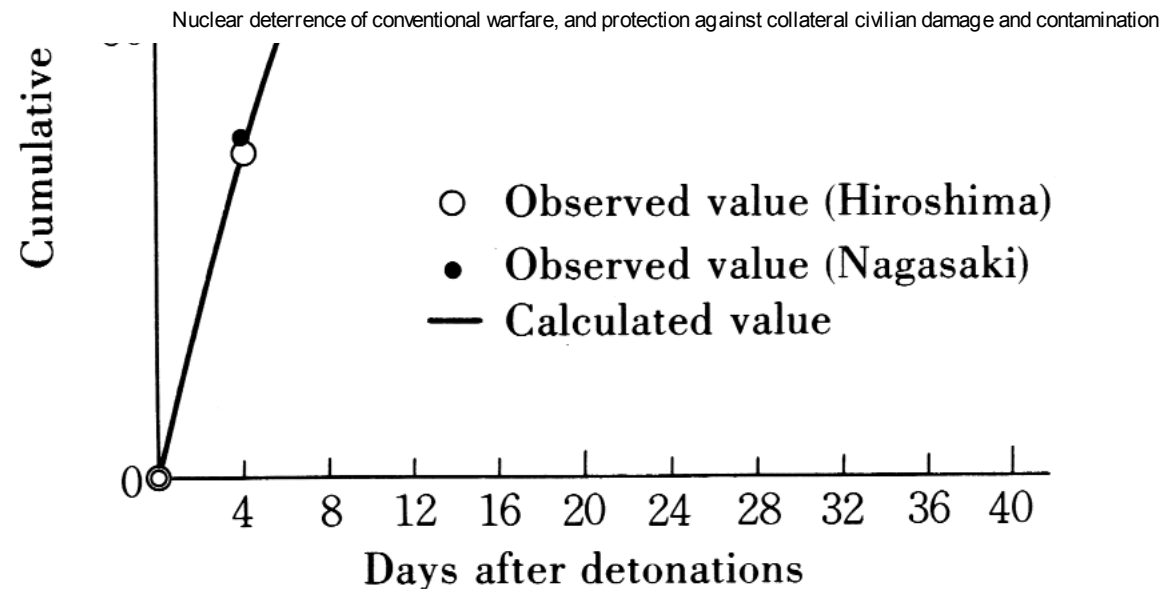


Figure 7.2. Cumulative death rate of atomic bomb victims. (Motosaburō Masuyama, Tokyo Imperial University) (Masuyama 1953, p. 510).

Above: extract from "Hiroshima and Nagasaki: The Physical, Social and Medical Effects", 1981 by the Japanese Committee for the Compilation of Materials on Damage Caused by Atomic Bombs

Above: nobody was instantly killed in Hiroshima and Nagasaki according to the data given in Figure 7.2 of *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings*. The vast majority of the deaths in both cities were spread over a period of about 30-40 days, with 50 percent within the first 6 days. This corresponds to the time taken for deaths from thermal burns, radiation sickness and infected wounds from flying glass and other debris. All of these sources of mortality can be minimized by civil defense, such as shelter away from windows on the floor of concrete buildings.

Oughterson and Warren's 1956 McGraw-Hill published book *Medical Effects of the Atomic Bomb in Japan*, page 134, shows that hair loss rates peaked at 26 percent of survivors at 15 days after the Hiroshima strike, falling rapidly to a few percent at 40 days, while purpura (blood spots visible under the skin, due to a decreases in blood platelets which are essential to prevent such bleeding by clotting small blood vessel leaks effectively as soon as they occur) incidence peaked at 25 percent of survivors at 25-30 days after the Hiroshima burst, before falling rapidly to a few percent at 55 days.

Hiroshima and Nagasaki nuclear war exaggerations for the USSR backed surrender movement

Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings contains an introduction which falsely implies that all deaths which occur anywhere downwind from the 1954 Bravo nuclear test are caused by radiation (page 4):

"A total of 290 people were affected - 239 inhabitants of three atolls in the area, of whom 46 people died during the period 1954-66 ..."

What is not stated is that the 46 people were deaths from natural causes. The one fatality in the Marshallese group probably due to radiation occurred in 1972, a leukemia death. You would expect to get over 1 percent mortality per year in any population due to natural mortality! The Preface to the English edition dated 12 February 1981 makes similarly misleading propaganda claims, exaggerating the scaling laws of nuclear weapons effects and ignoring the smaller casualty rates in modern city concrete buildings, than in the wooden buildings that predominated in cities in 1945 Japan. The facts given in the book do not, therefore, agree with the narrative dogma of anti-nuclear propaganda which is included in the book. The Preface admits that recovery of populations and wealth following nuclear war was rapid, despite the wooden houses being burned down and only concrete buildings surviving in the firestorm areas.

The fact is that radiation scare-mongering for political purposes as well as for Hollywood style science fantasy (*On the Beach*, *Dr Strangelove*, *Planet of the Apes*, etc.) terrorized many of the survivors and Hiroshima and Nagasaki, and caused the social and psychological fears which have proved unnecessary as the effects of radiation have become clearer. This is obfuscated by those who try to use Hiroshima data peace propaganda, by falsely pretending that all deaths after a nuclear war are due to fallout.

One more interesting fact in *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings* is worth mentioning. Tables 10.1 and 10.3 show that Hiroshima had 76,327 buildings of which 64,521 were wooden dwellings, and 47,969 were burned down with 3,818 demolished by blast alone. But Nagasaki had 48,950 buildings of which only 11,574 (23.6 percent) were burned out and 1,326 were demolished by blast alone. Lesser damage was sustained by the remaining buildings. The variability in the total number of deaths in Hiroshima is also explained on page 470:

"To summarize the preceding sources, almost 50,000 Koreans lived in Hiroshima city at the time of the atomic bombing, and roughly 20,000 of these died."

The inclusion or exclusion of these Korean slaves causes a disagreement in the numbers killed for Hiroshima, in different sources. For this reason, they are generally unreliable, and the important fact is that the mortality depended very strongly on the type of building (wood or concrete) and whether the people were standing and exposed to blast winds and flying glass, or lying prone and relatively safe from wind drag and debris.

Part IV of *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings* is labelled "Towards the abolition of nuclear arms" and consists of anti-nuclear weapons propaganda and pro-disarmament lobbying of the sort which created the 1930s appeasement era leading to WWII, and therefore makes for unpleasant reading. However, it does describe the American secrecy, for example the decision to seize Japanese data on survival in Hiroshima and Nagasaki and to classify it as secret during the intense nuclear publicity period of the late 1940s, only declassifying some of the data in 1951 (when the San Francisco Peace Treaty was signed by Japan), well after public prejudices had hardened and the "science had settled" without the correct facts being included in the undemocratic debate. The U.S. Strategic Bombing Survey in 1946 seized all the Japanese films and other data (page 510):

"All films, including 30,000 feet of negatives and other data, were requisitioned by the American authorities and sent to the United States in mid-May. Only ten reels of film ... were left in Japan. ... The U.S. Strategic Bombing Survey [USSBS] had been organized by the U.S. Army in November 1944 to investigate the bombing effects in Germany. On 15 August 1945, the day of surrender, President Harry S. Truman ordered the USSBS to investigate all effects of the atomic bombings on Japan and to report the findings to the United States departments of War and of the Navy. This survey staff was headed by T. D'Olive, assisted by Paul M. Nitze and Henry Alexander, and was composed of 1,150 personnel ..."

The role of Stalin's communist propaganda machine in the anti-nuclear movements of Japan is documented on page 573, to try to ban American nuclear deterrence that might interfere with communist expansion across Eastern Europe, prior to the first Russian nuclear test of August 1949:

"In August 1948 intellectuals from East and West met in [communist] Poland [location for the 1955 Warsaw Pact of Eastern Europe] for the World Congress of Intellectuals to Protect the Peace; and in April 1949 the First World Assembly to Protect the Peace was held in Paris and Prague. The assembly committee called for 'an absolute ban on atomic weapons' and 'establishment of international supervision to guarantee its observance'."

Page 591:

"The Peace Problems Research Group was formed at Hiroshima University in September 1951. In February 1953, volunteers from universities throughout Hiroshima City organized the University Group to Protect Peace and Learning ..."

Page 594 notes that the Japan Teachers Union, 500,000 members strong, began in June 1947 and was mobilized as a peace movement after the Korean War broke out in 1950, with 1951 seminars throughout Japan under the slogan "Don't send our students to the battlefield again."

Page 595 explains how the teachers unions peace propaganda then diversified into the Hiroshima anti-nuclear campaign, much to the horror of those conservatives in Japan who wanted to rearm for deterrence:

"Peace education was promoted in each prefectural teachers union. The Yamaguchi Prefecture Teachers Union, for example, collected daily diaries ... excerpts ... from a primary school pupil's 1953 diary, expressed opposition to rearmament - and provoked fiery criticism about 'ideologically prejudiced education' from the conservative camp that was pushing for the rearmament of Japan."

The Chronology at pages 615-629, also page 6 for the typhoon on 17 September 1945 which wiped out a majority of the bridges of Hiroshima:

23 August 1945: *Mainichi Shimbun* newspaper reports false American claim that Hiroshima and Nagasaki will remain uninhabitable for 70 years due to radiation.

24 August 1945: *Asahi Shimbun* and *Yomiuri Hochi Shinbun* newspapers report false American claim that Hiroshima and Nagasaki will remain uninhabitable for 75 years due to radiation. (Five years longer than previous day's news.)

17 September 1945: typhoon hits Hiroshima, with flood waters sweeping away over half of the bridges of the city (which survived the nuclear blast on 6 August!). Natural disasters can be worse than nuclear war.

3 September 1945: **Russian spy and propaganda spreading "journalist" Wilfred Burchett arrives in Hiroshima and starts to write exaggerating accounts of radiation to drum up anti-nuclear movement to help Stalin.**

7 February 1965: Democratic President Lyndon Johnson begins to bomb North Vietnam with disastrous results (ignoring the lessons of air power in WWII), instead of using nuclear weapons to blow down a proper demilitarized belt of jungle between North and South that could be patrolled safely from the air. It is believed that this policy will avoid intensifying the Cold War, but it does the opposite, leads to failure when the economic costs become too high, and promotes communist-encouraging "peace" protests and thus appeasement with the massive USSR military build-up, continuing until Reagan opposed it during the 1980s.

Psychological effects of the Atomic Bombings and civil defense

The greatest irony of *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings* is that on page 14 it repeats the finding of Seiichi Nakano who in October 1952 surveyed the social-psychological effects incidence for 332 Hiroshima survivors as compared to a control group of 268 unexposed personnel in Kure City. Nakano discovered that survivors within 1 km of ground zero in Hiroshima suffered trauma and guilt afterwards because most abandoned family members to escape soon after the explosion. (Reference: Seiichi Nakano, "Sociological Study of Atomic Bomb Effects, in *Genbaku to Hiroshima* or *The Atomic Bomb and Hiroshima*, Collection of Research Papers of University Men's Group, first collection, University Group to Protect Peace and Learning, ed. Hiroshimaken Kyoshokuin Kumiai Jigyobu, Hiroshima.) **This is precisely in accordance with the 1966 Dirkwood Corporation analysis of rescue efforts in after the nuclear attacks in Japan (in [AD0653922](#)), which showed that only a few percent of people near ground zero were rescued by others**, leading to guilt in the survivors. This is therefore one of the strongest arguments for increasing world knowledge of nuclear weapons effects and civil defense rescue techniques.

The Effects of the Atomic Bomb on Hiroshima, Japan, secret, unpublished three-volume May 1947 report

The 14 October to 26 November 1945 U.S. Strategic Bombing Survey of Hiroshima is the key compendium of data, with much more data than any nuclear test report from the 1950s. A **1946 British Mission to Japan report includes photographs of air raid shelters which**

survived near ground zero in Hiroshima and Nagasaki, but gives the survival data of 15,000 school children (in teams clearing firebreaks mainly outdoors), without stating the survival rates inside modern buildings. This is also done in Manhattan District report on Hiroshima and Nagasaki, and in the 1950-77 editions of *The Effects of Atomic Weapons* and *The Effects of Nuclear Weapons* where no breakdown of survival data in different kinds of buildings and in the open is provided. **In particular, the cause of the Hiroshima firestorm was determined by the U.S. Strategic Bombing Survey in its secret May 1947 report, but this was omitted from publications such as its unclassified report and the book, *The Effects of Atomic Weapons*.**

Beginning with an incendiary raid on Tokyo on 9 March 1945 which Japanese records showed killed 83,793 and burned out 267,000 buildings (25% of Tokyo's buildings), sixty-four Japanese cities were destroyed by non-nuclear air raids. **The detailed and objective analysis of these incendiary air raids was classified "Restricted" in April 1947 by the U.S. Strategic Bombing Survey in its unpublished limited distribution typeset and printed report Number 90, *Effects of Incendiary Bomb Attacks on Japan*, (108 MB PDF linked here). Part 3 (pages 65-118) documents the effects of the 9 March 1945 Tokyo incendiary raid, with photos on pages 104-109 very similar to the damage in Hiroshima and Nagasaki (combustible light frame buildings burned out with their steel distorted by the fires, and piles of charred bodies in streets). By omitting to publish this, an objective comparison of nuclear with conventional attacks was prevented.**

The Effects of the Atomic Bomb on Hiroshima, Japan, USSBS report 92, volume 2 (typeset May 1947 edition, secret)

Volume one, page 14: "the city lacked buildings with fire-protective features such as automatic fire doors and automatic sprinkler systems", and pages 26-28 state the heat flash in Hiroshima was only "capable of starting primary fires in exposed, easily combustible materials such as dark cloth, thin paper, or dry rotted wood exposed to direct radiation at distances usually within 4,000 feet of the point of detonation (AZ)." Page 85 of volume one explains why so many people were outdoors in Hiroshima at 8:15 on 6 August 1945:

"*Conditions on Morning of Attack.* The morning of 6 August 1945 was clear with a small amount of clouds at high altitude. Wind was from the south with a velocity of about 4.5 miles per hour. Visibility was 10 to 15 miles. An air-raid 'alert' was sounded throughout Hiroshima Prefecture at 0709 hours [the weather survey B-29 aircraft flying one hour ahead of the nuclear bomber]. 'All-clear' was sounded at 0731 hours. The following circumstances account in part for the high number of casualties resulting from the atomic bomb:

- (1) Only a few persons remained in the air-raid shelters after the 'all-clear' sounded.
- (2) No 'alert' was sounded to announce the approach of the planes involved in the atomic-bomb attack.
- (3) The explosion occurred during the morning rush hours when people had just arrived at work or were hurrying to their places of business. This concentrated the population in the center of the city ..."

Volume two examines the ignition of clothing by the thermal radiation flash in Hiroshima:

Page 24: "Scores of persons throughout all sections of the city were questioned concerning the ignition of clothing by the flash from the bomb. ... Ten school boys were located during the study who had been in school yards about 6,200 feet east and 7,000 feet west, respectively, from AZ [air zero]. These boys had flash burns on the portions of their faces which had been directly exposed to rays of the bomb. The boys' stories were consistent to the effect that their clothing, apparently of cotton materials, 'smoked,' but did not burst into flame. ... a boy's coat ... started to smoulder from heat rays at 3,800 feet from AZ."

Page 28: "Wood poles as far as 10,000 feet in a southerly direction from AZ [air zero] and 13,000 feet in a northerly direction were flash-burned but the burns, generally not much more than a discoloration of the wood, were in all cases only on the side of the pole facing AZ. ... it is logical to conclude that wood (ignition temperature approximately 450 F) was not raised to its ignition temperature, except possibly in its most easily ignitable condition, such as dry-rotted. Surface spalling or roughening of granite by heat was observed near GZ and as far as 2,400

feet from AZ. This condition was only noticeable where the granite was directly exposed to rays from the bomb (surfaces facing AZ but shielded from it were not spalled) indicating that extremely high temperatures lasted only a fraction of a second. Asphalt road surfaces and asphalt-painted surfaces also were flash-burned, distinct shadows of objects being cast upon them, which again indicated that the radiated heat from the bomb created a temperature which was high but of short duration. ... Blisters as much as one-sixteenth inch high were raised on exposed tile at GZ (2,000 feet from AZ), decreasing in size as the distance from AZ increased until they were barely visible at 4,400 feet from AZ (4,000 feet from GZ)."

Page 34: "The fire wind seems to have reached its maximum velocity about 2 to 3 hours after the bomb explosion, following which it began to diminish in intensity. ... the heavier rain began about 3,500 feet west of GZ and extended westward about 5,000 feet. Light rain was reported to have fallen near the center of the city. ... Rain fell almost exclusively in the northwest area of the city ... accounted for by the light natural wind from the southeast which blew particles of hot carbon northwestward to a cooler area where moisture condensed about them and fell as rain."

Page 44: "A special effort was made to determine the probable cause of initial ignition in buildings in which there was fire and the reason for non-ignition in buildings in which there was no fire. By observation and by interrogation of persons who were in or near the buildings when the bomb detonated it was established that the probable causes of initial ignition in 40 of the 58 fire-resistive [not wood frame] buildings in which there was fire were as follows: 8 by heat radiation from the bomb (primary fire); 3 by blast disturbance of telephone or chemical laboratory equipment (secondary fire); and 29 by fire spread from exposing buildings."

Page 45: "*Direct Ignition by the Atomic Bomb.* ...

"(1) Each of the eight fire-resistive buildings in which primary fire was reported had unprotected windows facing AZ. Black cotton black-out curtains or light-weight paper, or both, were reported to have ignited initially in most of these buildings. All buildings in Hiroshima whose windows were not equipped with steel-roller shutters, which were considered light-proof, were required to have black-out curtains. Among the eight buildings which had primary fires, the farthest from AZ was Building 64 [Hiroshima Communications Hospital] at 5,300 feet [from AZ, or 4,900 feet from GZ].

"(2) A doctor who was in the first story of Building 64, a hospital 5,300 feet from AZ, stated that he discovered fire in the second story 10 minutes after the detonation, but was unable to identify the source. ... Cotton black-out curtains were drawn across the second-story windows only. ... Contents in the second story were totally damaged by fire, but in the first story only a few pieces of wooden furniture near the windows in the south wall facing AZ were scorched ..."

Page 70: "*Direct Ignition by the Atomic Bomb.* None of the 8 non-combustible buildings which had [contents] fire in them was reported to have had its contents ignited by radiated heat from the bomb. All except 3 (Buildings 46, 78, and 81) of the 12 non-combustible buildings had at least some unprotected wall openings facing AZ at the time of detonation of the bomb. The contents of these 3 buildings were shielded from direct radiated heat from the bomb by a blank wall, closed fire shutters, or another building. ...

Pages 74-75: "*Combustible Construction. a. General.* ... combustible buildings were load-bearing, brick-wall structures with wooden floors or roof, or both; steel-frame structures with wooden purlins and studs ... It was established that the probable cause of initial ignition in 23 of the 41 buildings which had fire was as follows: 3 by secondary fire (electrical equipment, stoves and industrial furnaces), and 20 by fire spread from exposing buildings. ... No eyewitness testimony was obtained to the effect that any one of the 41 fire-damaged combustible buildings was ignited directly by flash heat from the bomb.

"*b. Direct Ignition by the Atomic Bomb.* Although none of the 41 fire-damaged combustible buildings was reported to have been ignited by radiated heat from the bomb, it is considered probable that the contents of a few of the buildings which had unshielded wall openings facing AZ and which were within 4,000 feet of AZ were ignited in this manner. Since wooden poles and other exposed wood, even near GZ, were only flash burned by the bomb, it seems unlikely that exposed wood outside or inside buildings was ignited directly. ...

“c. Ignition by Secondary Fire. It was established that the initial ignition in three combustible buildings (3 [Hiroshima Electric Company’s Yagurashita Substation 900 feet from GZ], 37 [Takano Bath House 4,200 feet from GZ], and 72 [Toyo Light Alloy Company 6,200 feet from GZ]) was probably by secondary fire. These comprise 13 percent of the cases in which the probable cause was determined in this class of building. Building 3, an electric substation, was ignited by short circuits in electric generating and transforming equipment after the blast had collapsed the combustible roof. ... Building 37, a public bath house, was ignited by a hot stove after the blast had collapsed the combustible roof so that it fell on the stove. The combustible debris and contents were completely consumed. Building 72, an aluminum foundry, was ignited by a hot stove ...”

Page 88: *“Ignition of the City.* ... Only directly exposed surfaces were flash burned. Measured from GZ, flash burns on wood poles were observed at 13,000 feet, granite was roughened or spalled by heat at 1,300 feet, and vitreous tiles on roofs were blistered at 4,000 feet. ... six persons who had been in reinforced-concrete buildings within 3,200 feet of air zero stated that black cotton blackout curtains were ignited by radiant heat ... dark clothing was scorched and, in some cases, reported to have burst into flame from flash heat [*although as the 1946 USSBS report admits, most immediately beat the flames out with their hands without sustaining injury, because the clothing was not drenched in gasoline, unlike peacetime gasoline tanker road accident victims*] ... but a large proportion of over 1,000 persons questioned was in agreement that a great majority of the original fires was started by debris falling on kitchen charcoal fires, by industrial process fires, or by electric short circuits. Hundreds of fires were reported to have started in the centre of the city within 10 minutes after the explosion. Of the total number of buildings investigated [135 buildings are listed] 107 caught fire, and in 69 instances, the probable cause of initial ignition of the buildings or their contents was as follows: (1) 8 by direct radiated heat from the bomb (primary fire), (2) 8 by secondary sources, and (3) 53 by fire spread from exposed [wooden] buildings.”

Page 110: “The most common failure of wood-frame buildings was buckling of the relatively slender columns ... This resulted usually either from a mass displacement of the building away from the blast, or from panel walls being blown in and carrying the columns along.”

Pages 126-8: “Structural damage by blast to multistory, steel- and reinforced concrete-frame structures did not extend beyond 2,000 feet from GZ. The buildings within this radius sustained an average of 12 percent structural damage. The average for all the buildings of this type in Hiroshima was 8 percent.”

Page 96 gives the mean destructive distance for multistory steel and reinforced concrete frame (both earthquake and non-earthquake resistant) buildings at 700 feet, compared to 9,200 feet for Japanese (wood-pole constructed) wooden houses. The damaged areas are proportional to the square of the radius, so although the Japanese wooden houses were only destroyed out to a radius about 13 times greater than modern city buildings, they were destroyed over an area that was 173 times greater. Thus, for a similar bomb yield and altitude, the number of damaged buildings in a modern city would be 173 times less than in Hiroshima on 6 August 1945.

Page 126 states that the effects would have been stronger near ground zero for a lower burst height, but “lowering the height of detonation would have increased the amount of shielding of one structure by another”, thereby preventing the wide-area Mach stem enhanced blast and thermal effects like flash burns. **Penney published extensive evidence of blast wave attenuation by the work energy done in causing damage (the force F due to a blast pushing a wall distance D in the direction of the blast uses energy $E = FD$, so energy is continually lost from the blast wave in a city, in doing damage).**

Although fashionable books on Hiroshima tend to print pictures of the “blasted” twisted metal beams of the Odamasa Store (former Taiyo Theatre), USSBS building 52 at 2,800 feet from ground zero, page 322 explains it is an effect of fire: **“Severe distortion caused by burning of combustible construction and contents.”** Furthermore, **similar twisting of metal frames in wooden buildings occurred in the Toyko incendiary attack, but those photos remained Restricted. It is not a special “nuclear” effect, nor are the burned bodies in the streets of Tokyo photographed after the main non-nuclear attack, despite all the polemic and inaccurate claims attacking civil defense.**

Volume three states on page 29:

"The atomic bomb detonated at Hiroshima, although it was an extremely powerful blast weapon, caused relatively little structural damage to the 81 important bridges. Scattered throughout the entire city, the bridges, 260 to 15,600 feet from ground zero (GZ), connected islands to islands and islands to the mainland, forming an adequate and efficient bridge system. ... impressive evidence of the ability of the bridges to resist the forces of the Hiroshima atomic bomb (air-burst at 2,000 feet) was found in the facts that (1) 10 of 19 timber bridges studied were undamaged, (2) 10 of 15 concrete bridges had no damage, and (3) 14 of 23 steel bridges were undamaged."

This is illustrated by the survival of the nuclear target point, the distinctive T-shaped Aioi bridge at the intersection of the Ota and Motoyasu Rivers (located 1,000 feet from ground zero due to the Hiroshima bombing error). Volume three at page 40 explains: "This bridge of plate-girder design received physical damage of a spectacular and interesting nature but it continued to carry unrestricted highway, pedestrian, and street railway traffic. The longitudinal steel girders suffered no great structural damage although a slight lateral deformation indicated that they had been highly stressed." Bridge 20 over the Motoyasu River at 2,900 feet from ground zero retained clear "shadows" of non-scorched asphalt cast by the hand railings, one of the pieces of evidence which allowed geometric determination of the burst location and altitude.

EMP effects in Hiroshima may have been masked by blast and fire damage, as indicated in volume three, pages 191-6: "Of the 7 substations of the Chugoku Electric Co., the Sendamachi substation and steam-electric plant at 7,700 feet from GZ were heavily damaged by fires which spread to the area. The Otemachi substation, 2,400 feet from GZ, was heavily damaged by blast and fires started by the short-circuited equipment. The Dambara, Misasa, and Eba substations were only slightly damaged at distances from GZ of 5,500 feet and beyond. ... *Analysis of the Damage*. The Hiroshima substation, 15,000 feet from GZ, was undamaged by blast as a direct effect, but the tremendous overload created by the short-circuited damaged electrical equipment in the city of Hiroshima tripped the circuit breakers in the substation and immediately interrupted all electrical services in the Hiroshima area."

The reason why there is statistically reliable data on high doses of radiation from Hiroshima and Nagasaki is simply the fact that many people - far from being instantly vaporized along with all buildings near ground zero - survived all of the nuclear explosion effects within the Hiroshima firestorm in the Bank of Japan and Geibi Bank Company, and extinguished fires 2-3 hours after the nuclear explosion when firebrands (burning cinders) were blown through broken windows from the wooden areas firestorm surrounding these modern concrete city buildings. The U.S. Department of Defense *DCPA Attack Environment Manual* 1973, chapters 3 and 8, documents the successful firefighting in modern buildings within the Hiroshima firestorm. Amateur fire-fighting in the Hiroshima nuclear attack is more applicable to modern cities today which contain fire-sprinkler systems in vulnerable buildings and fewer wooden houses:

"The study involves the development of techniques to evaluate the effect of fire defenses on building fires caused by a nuclear burst and the incorporation of the fire-defense techniques in a fire-spread model. ... Preliminary computations indicate that within a few hours about 1/4 of the manpower available in a tract can suppress all fires created by the initial ignition of 1/2 or less of the buildings. Most of the manpower, particularly those in the self-help teams, can be diverted to other activities after several minutes of effort. The preliminary results show that ordinary citizens with minimal instruction and training can bring about very pronounced reductions in the total fire damage."

- Arthur N. Takata, *Mathematical Modelling of Fire Defenses*, IIT Research Institute, report AD0688941, 1969 (See also part 2, AD0705388.)

The U.S. Department of Defense's 1973 *DCPA Attack Environment Manual*, chapter 3, panel 26 used the examples of successful amateur fire-fighting modern Western-type city buildings in Hiroshima as proof that people can survive in modern city buildings exposed near ground zero within the firestorm of a nuclear explosion (due to overcrowded wooden housing areas). The data came from reports which remained limited or secret in distribution, however. Panel 27 in chapter 3 of the 1973 *DCPA Attack Environment Manual* states:

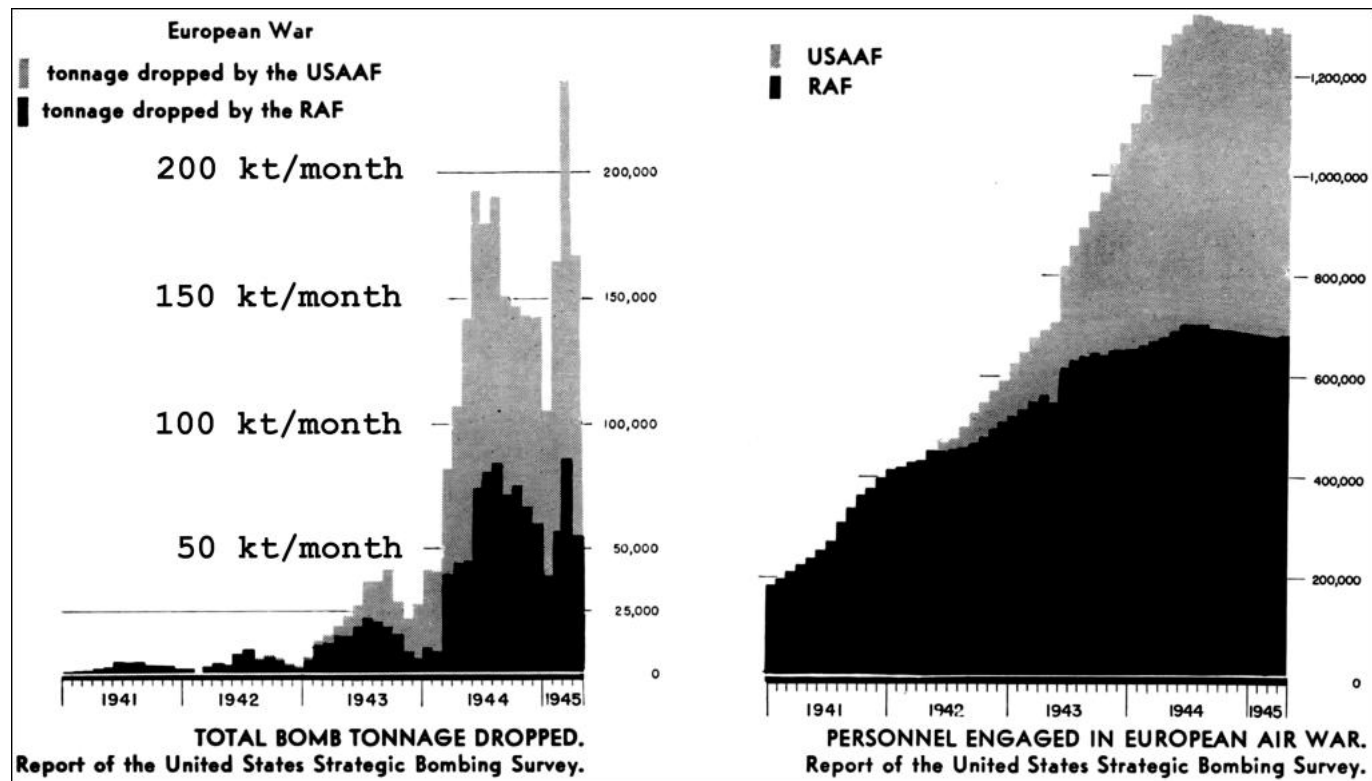
"The evidence from Hiroshima indicates that blast survivors, both injured and uninjured, in buildings later consumed by fire were generally able to move to safe areas following the explosion. Of 130 major buildings studied by the U.S.

Strategic Bombing Survey ... 107 were ultimately burned out ... Of those suffering fire, about 20 percent were burning within the first half hour. The remainder were consumed by fire spread, some as late as 15 hours after the blast."

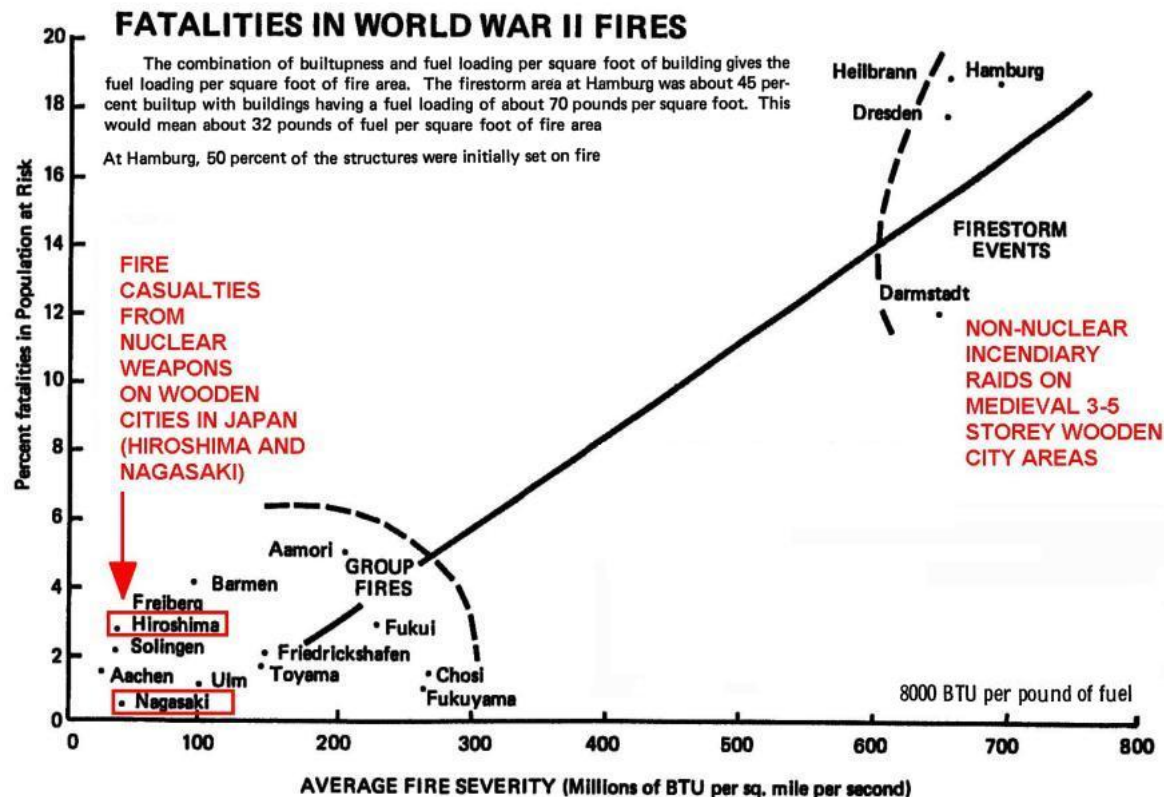
This proves that the rapid room flashover filmed *Upshot-Knothole Encore* test effect in a litter-filled wooden and inflammable materials-filled room with a large window facing the fireball with no obstructions or "shadowing", did not occur in the 80% humidity conditions of Hiroshima, far higher than in the drier Nevada test site desert (the humidity in Hiroshima was 80% and in Nagasaki it was 71%, see table VI of William E. Loewe, Lawrence Livermore National Laboratory report UCRL-90258, 1983). Although humidity has relatively little effect on the ignition energy for thin fine kindling materials, the proportionate effect is far greater for thicker fuels with the same equilibrium moisture content. The thermal flash can dry out damp paper; but it cannot dry out damp wood (a maximum of 0.85 mm of the surface of wood was charred by 50 cal/cm² from a 30 kt test in 1955 as proved by Kyle Laughlin in nuclear weapon test report WT-1198, 1957). Therefore, rapid flashover does not occur in realistic city humidity (most cities are beside rivers, lakes or the ocean). It did not occur from thermal radiation in Hiroshima.

Panel 3 of chapter 3 of the 1973 *DCPA Attack Environment Manual* also points out that the predictions of thermal burns in *The Effects of Nuclear Weapons* omit protection due to shadows by tall buildings in modern cities, and duck and cover evasive action: "Persons caught in the open or near windows can also take advantage of the relative slow pace of the thermal pulse from large-yield weapons. ... Further out, even more time would be available. In the light damage area (1 to 2 psi), evasive action within the first four seconds would avoid significant burn injury."

In *The Number of Atomic Bombs Equivalent to the Last War Air Attacks on Great Britain and Germany* (National Archives piece HO 225/16, 1950, Top Secret for 8 years then Restricted until 1980), the British Home Office Scientific Advisory Branch points out nuclear war damage and casualties tends to be exaggerated by the media's incorrect use of Hiroshima. For example, it found that actual WWII damage on Britain was found to be equivalent to 52 Hiroshima bomb's "for the night raiding conditions on London in the last war, where something like 60% of the population were in houses, 35% in shelter and 5% in the open ..."



Lommasson and Keller, A Macroscopic View of Fire Phenomenology and Mortality Predictions, Dikewood Corporation, DC-TN-1058-1, December 1966.



Above: conventional warfare dropped 240 kilotons of bombs on Germany in the month of March 1945 alone, equivalent to 15 times the 16 kt Hiroshima nuclear bomb, i.e., one Hiroshima every 2 days during March 1945.

Note that in both WWI and WWII the vast majority of the weapons and explosives used were manufactured *during the war itself*, so prior disarmament would not have assured that no weapons were used. One assumption in most disarmament propaganda is that a war is an instant all-out blitz; this assumption was made prior to WWI and was proved false, and again before WWII and was proved false again. The whole of the *second-strike capability of hardened silos and hidden submarines* designed by RAND Corporation strategists in the late 1950s was *specifically aimed at removing any temptation for such a short knock-out war*. This second-strike system remains and takes away any rational incentive to launch a surprise all-out attack.

This is why, as President Obama stated, the major risk from nuclear weapons is a limited nuclear attack due to terrorism and rogue states. A nuclear attack will have a similar effect to large WWII air raids, but the effects will be *easier to mitigate* than V2 warheads, if people are informed about the *reality* of nuclear weapons effects phenomenology, and duck before the blast wave arrives, stamp out fires, and take cover from fallout. EMP will often rapidly disconnect the electrical fire risk by activating circuit breakers in substations, as at the Nevada test site after EMP pick up in long cables which carried thousands of amps from close-in locations out to the control point 30 miles away (not only to

the 2 psi overpressure range gives in Glasstone and Dolan, which confuses the range to which cables pick up EMP with the range to which currents can be carried by cables). This is made clear in B. J. Stralser's secret 30 April 1961 E.G. and G. report *Electromagnetic effects from nuclear tests*.

Distributing the same explosive energy over many small bombs (rather than a single large bomb) in conventional is actually more damaging, since people have no time to respond near a small bomb that explodes. Additionally, the overpressure-damaged area from a bomb scales up only as the two-thirds power of the explosive energy, and is equivalent to megatons of nuclear weapons per month. The Manhattan Project in 1945 at best could produce only two bombs per month. There is a tendency among many politicians, historians, disarmers, and others to down-play conventional warfare and to exaggerate the effects of nuclear weapons, by misleadingly selective use of statistics.

As for evidence for firestorm soot causing nuclear winter, **the sun was obscured by the mushroom cloud dust and smoke for 25 minutes (from burst time at 8:15 am until 8:40) in Hiroshima as shown by the meteorological sunshine records printed in Figure 6 (3H) of Drs. Ashley W. Oughterson, Henry L. Barnett, George V. LeRoy, Jack D. Rosenbaum, Averill A. Liebow, B. Aubrey Schneider, and E. Cuyler Hammond, *Medical Effects of Atomic Bombs: The Report of the Joint Commission for the Investigation of the Effects of the Atomic Bomb in Japan, Volume 1*, Office of the Air Surgeon, report NP-3036, April 19, 1951, U.S. Atomic Energy Commission (linked here)**. There were no reported casualties due to 25 minutes of sunlight deprivation.

(Source of WWII monthly bombing weight bar charts: *Overall Report, European War, USSBS, 1945*, charts 3 and 4. Chart 1 in this document shows that 2,697,473 tons of bombs were dropped on the occupied countries in Europe by the US Army Air Force and the RAF, including 50.3% on Germany, 21.8% on France and 13.7% on Italy. In 1945, essentially all of the bombing was on Germany.)

The fact that civilian damage can be accomplished by conventional warfare led the **British Minister of State, Foreign and Commonwealth Office (William Waldegrave) to explain in the 28 July 1988 House of Commons debate on Disarmament (Hansard HC Deb 28 July 1988 vol 138 c778):**

"Britain and Europe have suffered dreadfully from conventional wars during this century, and modern conventional weapons are many times more destructive than those of 40 years ago. ... That is why we must insist that nuclear arms control must not make Europe safe for conventional war ..." Nuclear weapons were clearly not responsible for WWI or WWII, despite false and misleading anti-civil defense propaganda spread by Noel Baker, Joseph Rotblat and others who found it immoral to use nuclear weapons for ending WWII but were happy to work on them when it happened to suit their personal pet politics. When a terrorist uses a weapon and thousands of people don't duck and cover against blast, glass and radiation, what does the great "free" media of fashionable groupthink prejudice do then? Laugh at the needless suffering? Pretend that they followed the consensus of politically dogmatic consensus that was justified by the long term ambition to end nuclear deterrence and go back to conventional war, and to do this by telling lies about civil defense? Or do what it usually does, and learn the lessons when it is too late to prevent needless suffering? **here.**)

London received 71 major raids (over 100 tons/raid) in the Blitz from 7 Sept 1940 to 16 May 1941, consisting of 18,291 tons or 18.291 kilotons of high explosive, over twice the blast yield (8 kt) of the 16 kt Hiroshima nuclear bomb (O'Brien, *Civil Defence*, 1955, Appendix IV, p681). These explosives were mainly 50 kg and 250 kg (B'Brien, p505), an average of about 0.1 ton of explosive per bomb. The scaled area equivalent megatonnage for overpressure damage areas and casualties from the London Blitz is therefore 4 thermonuclear weapons, each with a total yield of 2 megatons (1 megaton of which is blast):

$(4 \text{ bombs}) \times (1 \text{ megaton TNT blast yield})^{2/3} = (182,910 \text{ bombs of } 0.1 \text{ ton each}) \times (10^{-7} \text{ megatons blast yield})^{2/3}.$

Home Office experts had experience from the WWII Blitz, visited Hiroshima and Nagasaki in 1945 after the nuclear air bursts (as part of the British Mission to Japan), and set up Anderson shelters at Monte Bello to assess their protection against nuclear war at the first British nuclear bomb test. The first manual they issued on nuclear attack was the

excellent 1950 “Atomic Warfare” (PDF file, 6 MB, linked here) with 24 photos of damage from blast, heat and fire from Hiroshima and Nagasaki and the protection from heat flash by shadows, a discussion of shelters in Hiroshima and Nagasaki, a blast pressure graph and discussion, and a Foreword by Labour Prime Minister Clement Attlee. Then, under Prime Minister Churchill, in 1953 the **British Government published its excellent civil defence training notes “The atom bomb, its effects and how to meet them: Heat” (0.6 MB PDF) and “The atom bomb, its effects and how to meet them: Effects on personnel” (0.8 MB PDF).**

Most later British manuals appeared to be mindless drivel, despite being based on more solid evidence from nuclear testing, *because all the evidence was secret and had to be omitted, leaving patronising advice that looked pathetic to readers.* Even the Hiroshima and Nagasaki shelter photos and discussions were omitted from future Home Office *Nuclear Weapons* and *Protect and Survive* handbooks, instead of adding more photos and data from Hiroshima and Nagasaki to inform the readers about the possibilities for survival. However, **the 1960 Civil Defence Handbook no. 7 Rescue, a 25 MB PDF file, linked here does reprint key Hiroshima and Nagasaki building damage photos, showing building response to blast from the standpoint of improvised rescue techniques, comparing it to the London Blitz.** Also in 1960, **concise Civil Defence Instructors’ General Notes (78 pages, PDF linked here) were published which provide an excellent brief overview of civil defence against conventional high explosive bombs, nuclear, chemical and biological weapons.**

What went wrong with civil defense during the Cold War era was the move towards hubris, arrogance, patronising, dependence upon authority, and increasing secrecy over the basis of the evidence for widely mocked and attacked civil defense countermeasures against nuclear, chemical and biological weapons. Instead of focussing on making the lessons of Hiroshima clear for all to understand, these lessons went unpublished or were actually classified secret. The failure of the government to effectively and scientifically answer and demolish false propaganda attacks in the media against civil defense undermines national security when the chips are down:

“The only way to win a war is to escalate it one way or another above what the enemy can endure. If we feel that we cannot win without unacceptable risk we have no business fighting in the first place.

“There are just two checks on escalation. One is the waning of motivation for fighting the war in the first place. A long grinding war of attrition on the ground might achieve this ... The second check on escalation is to so overwhelm your enemy with such heavy and rapid destruction that he loses all hope of winning. Then surrender is an attractive choice when compared to inevitable defeat or certain death. This, of course, is the way we brought Japan to terms in 1945. *It was unnecessary to invade with infantry and fight a ground war.* We seem to have forgotten this fact. Even though Japan had four million troops under arms with two million guarding her shores, not a shot was fired. We invaded with fourteen hundred military administrators, by air. Not a life was lost in this invasion.

“The Japanese had been highly motivated to wage war against us. Kamikaze tactics and no-surrender policies were typical. Yet a realization that Japan simply could not win and the certainty that continued resistance meant mounting devastation caused her to toss in the sponge. ... In the final analysis, hundreds of thousands of lives were saved and dozens of cities spared ... In Korea ... there were three and a half million military casualties on both sides during three years of drawn-out war. Over a million civilians were killed ...”

- General Curtis E. LeMay, *America is in Danger*, pages 307-9.

In a surprise attack, conventional weapons give practically no time for defensive countermeasures, unlike the bright flash prior to the blast arrival over most of the damaged area in a nuclear explosion, which acts as a warning. With nuclear weapons, there is an automatic warning prior blast and fallout arrival over the wide areas of destruction, which gives time for most people to take effective countermeasures and was used by people who experienced the Hiroshima nuclear explosion before travelling to Nagasaki and surviving the second nuclear explosion. As explained by **Professor Joseph O. Hirschfelder, “The Effects of Atomic Weapons”, *Bulletin of the Atomic Scientists*, August-**

September 1950, vol. VI, no. 8-9, pp. 236-40 and 285-6 (quotation from page 238):

“Because of the comparatively long duration of the thermal radiation, exposed personnel can greatly reduce their exposure by ducking behind an obstacle or dropping prone. Ducking behind an obstacle would also considerably reduce the exposure to gamma rays and place the person in a more sheltered position to withstand the flying debris which will shower the area a few seconds later when the blast wave passes. It takes the blast wave one second to reach one-half mile, three seconds to reach one mile, and seven seconds to reach two miles.”

Dr Samuel Glasstone in 1950 compared psychological fears of radiation to ignorance of gas warfare in *Effects of Atomic Weapons, 1950*, page 289, paragraph 8.116: **“perhaps the most important application of radiological warfare would be its psychological effect as a mystery weapon, analogous to the initial use of poison gas ... The obvious method to combat radiological warfare in this case is to understand and be prepared for it.”** By educating people in simple effective fallout countermeasures, the use of fallout in warfare by ground bursting nuclear weapons may be discouraged, like gas in WWII. In the event of a disaster, panic can be replaced by actions that will reduce the danger. The gas illusion:

“In the next war, with its overwhelming air raids, its gases blotting out life over square miles, its bacilli, possibly its rays, munitions works and the services of the rear will be special objects of attack.”

- Irwin Will, *The Next War: An Appeal to Common Sense*, E. P. Dutton, New York, 1921, p77 (best-seller first published by Dutton in April 1921, 23rd printing, October 1921).

“The chemical Warfare Research Department [prior to 1927] had been making experiments to determine how long persons could remain under certain conditions in a ‘gas-proof’ room ... a broadcast in February [1927] by Professor Noel Baker, on ‘Foreign Affairs and How They Affect Us’ ... claimed, ‘all gas experts are agreed that it would be impossible to devise means to protect the civil population from this form of attack’. The Chemical Warfare Research Department emphatically disputed the accuracy both of the details of the picture and of this general statement. They considered it unfortunate that statements of this nature should have been broadcast to the public, particularly after the Cabinet’s decision that the time was not ripe for education of the public in defensive measures.”

- T. H. O’Brien, *Civil Defence* (official U.K. history), 1955, p31.

Like civil defense attacking polemics today, Noel-Baker had **made a completely false claim about "all experts" agreeing that gas masks and civil defense are useless in that influential and dangerous February 1927 BBC radio broadcast, *Foreign Affairs and How they Affect Us*. As British official civil defence historian Terrence H. O’Brien states, the British committee on civil defence chickened out of censoring or even bothering to correct Noel-Baker, despite disputing his assertion in secret meetings. They agreed that he was wrong, but then agreed to do nothing, because they didn’t want to risk the work of censoring all BBC broadcasts on gas war. In the true spirit of British officialdom, they only considered censorship, not democratic argument by exposing the falsehood and demolishing it with facts. The Cabinet had decided gas defenses were a classified secret, so their hands were tied as they were bound by the Official Secrets Act. However, Noel-Baker was not telling the truth and the original 1915 British gas mask inventor Professor J. B. S. Haldane (who one of the experts on the gas civil defence committee advising the Cabinet) had published a very different view of gas warfare in his 1925 book *Callinicus: A Defence of Chemical Warfare*. It is a fact therefore that was a *lie* for Noel-Baker to two years later**

make his claim about a complete consensus of experts denying defense against war. Here are Noel-Baker's lying February 1927 BBC broadcast words of political Correctness and groupthink ideology:

“‘In the first phase of the next war,’ says a high authority, ‘there is little doubt that the belligerents will resort to gas bomb attack on a vast scale. This form of attack upon great cities, such as London or Paris, might entail the loss of millions of lives in the course of a few hours. Gas clouds so formed would be heavier than air and would flow into the cellars and tubes in which the population had taken refuge. As the bombardment continued, the gas would thicken up until it flowed through the streets of the city in rivers. All gas experts are agreed that it would be impossible to devise means to protect the civil population from this form of attack’.”

(Source: Peter Adey, *Aerial Life*, Wiley-Blackwell, 2010, p189.)

Noel-Baker, athlete and Quaker disarmer typical of the ideologues exaggerating weapons effects and denying facts about the efficiency of civil defence countermeasures today, later won a Nobel Peace prize and become a Lord, but his fear-mongering and scare-mongering lies about civil defence actually helped to enable Hitler to murder millions by cultivating appeasement. I have yet to find any historian who addresses the ideology whereby lies about civil defence for utopian dreams of disarmament are compared to Adolf Hitler's or Joseph Stalin's ideological lies of eugenics or Marxism; all are ideologies where "the ends justify the means" and since the ends are not achievable in the real world, all of these ideologies which rely on lying fear-mongering about the alleged evils of weapons, minority races, or genuine democracy. He failed to achieve peace and his lying ideology against civil defense actually made the war risks and the war dangers of the world worse, by removing support for Churchill and allowing public empathy to side with Hitler, even to the point of the British football team being forced to give the Nazi salute at a game in Germany. Support for appeasement was due in large part to the anti-civil defense groupthink polemics which played up WWI effects, but Noel-Baker did not do this by accident or genuine error, because he was *still* continuing the same inaccurate anti-civil defense polemics in 1980 to deny any possibility of civil defense being of value under any circumstances, again by examining *only the worst and least probable possibility*, despite this being proved in WWII to be a contrived, unbalanced piece of sophistry. This is like denying the value of hospitals, seat-belts or life-boats by the trick of *only considering worst-case eventualities where they are of minimal utility*. **House of Lords Home and Civil Defence Debate on 5 March 1980 (Hansard, vol 406 cc260-386):**

“... I want to argue that no measure of civil defence, in any war which we can realistically expect to have, will save a single life, and that to nurse a hope of safety from civil defence is to indulge a self-deceiving, futile and dangerous illusion—self-deceiving and futile because, as I said, civil defence will not save our lives; dangerous because it diverts attention from the only policy that gives us any genuine hope. It makes the public think that there will be safety where no safety is. It obscures the fact that the only way to avert disaster is to avert the war, and to abolish those offensive weapons without which aggressions cannot be begun. ... My Lords, the first atom bomb weighed two kilogrammes—less than 5 lbs [*sic*]. ... Against such a danger civil defence offers us no help ...”

But this is another falsehood of the same type as his 1927 BBC broadcast on gas: as WWII indicated (where gas was not used against Britain or Germany), by reducing the scale of the disaster if a terrorist or accidental nuclear explosion should occur, civil defense could help *avoid* escalation to a massive war by minimizing the effects even within war itself, stabilizing the political situation.

Denying civil defense facts, apart from maximising casualties, is a constraining act which forces only military responses in a crisis. Noel-Baker was never openly criticised for his propaganda and **also dismissed civil defence against biological warfare in a letter to the *New Scientist* (14 Dec 1961, no 265, p700), after they published an article called “Biological agents in warfare and defence” by Dr LeRoy D. Fothergill of the U.S. Army Chemical Corps:**

“May I express my gratitude to you for publishing the article ... Dr Fothergill writes with admirable restraint ... very little progress has been made in ... defending the citizen ... there is at present no defence against them, and none likely in the measurable future.”

Fothergill's article (aimed at raising concern to encourage more research and defences) gave *outdoor* data for wind dispersion of spores released by a ship off the Californian coast in 1950. Being inside with the windows closed gives good

protection while the cloud is blown past (even anthrax has a half life of only 25 minutes outdoors in bright sunlight in dry air and less in humid air; see Field Manual FM 3-3, 1992, Fig. B-1). Noel-Baker deceptively seized on an *omission* as if proof that countermeasures do not exist, exactly what he had done in 1927 when the government kept civil defence experiments and weapons effects facts secret.

“In May 1929, the Women’s International League for Peace and Freedom sponsored a conference in Frankfurt on ‘modern methods of warfare and the protection of civil populations’. ... While the overall objective of the proceedings was to enhance pleas for disarmament, individual participants did so by calling attention to the stakes of future wars ... conference speakers emphasized that ‘the worst of the past gives little idea of what would be the horrible reality of a future war,’ one where ‘the civil population ... will be massacred by gas bombs from thousands of aeroplanes ...’”

– Professor Susan R. Grayzel, *At Home and Under Fire*, Cambridge University Press, 2011, pp149-50 (citing Getrud Woker, “The Effects of Chemical Warfare,” in *Les methodes modernes de guerre et la protection des populations civiles / Chemical Warfare: An Abridged Report of Papers Read at an International Conference at Frankfurt, London, 1930*, p45).

“Most of the books and pamphlets on the subject seem to me to be of the nature of propaganda ... a great many opponents of the Government state that such things as gas-masks and gas-proof rooms are completely useless, that London could be wiped out in a single air raid ... a frightful responsibility rests on those who expose British children to such a death in order to score a point ... In 1915 ... I was at that time a captain in a British infantry battalion and was brought out of the trenches to St. Omer, where I assisted my father in the design of some of the first gas masks. ... one would be safe in a phosgene concentration of one part per thousand, of which a single breath would probably kill an unprotected man. Hence in practice such a mask is a very nearly complete protection. ... These gases can penetrate into houses, but very slowly. So even in a badly-constructed house one is enormously safer than in the open air. ... even if a new gas is produced, it is very unlikely that it will get through our respirators. ... Now all the poisonous gases and vapours used in war are heavier than air, so it is thought that they would inevitably flood cellars ... But within a short time it would be mixed with many times its volume of air. Now air containing one part in 10,000 of phosgene is extremely poisonous. But its density exceeds that of air by only one part in 4,000.”

- Professor J. B. S. Haldane, *A.R.P.*, 1938.

“Ever since the Armistice, three classes of writers have been deluding the long-suffering British public with lurid descriptions of their approaching extermination in the next war ... pure sensationalists, ultra-pacifists, and military experts. ... they do want to get their manuscript accepted for the feature page of the *Daily Drivel* or the *Weekly Wail*. In order to do that, they must pile on the horrors thick ... The amount of damage done by such alarmists cannot be calculated, but is undoubtedly very great. ... It is significant that they concentrate almost unanimously on poison gas, and that the dangers of high explosive and incendiary bombs are seldom stressed. The reason, of course, is obvious – poison gas has a much greater news value. It is still a new and mysterious form of warfare, it is something which people do not understand, and what they do not understand they can readily be made to fear. ... Millions of people, perhaps, have been impressed by the authority and reputation of Mr H. G. Wells into believing that this picture represents the plain truth.”

- Professor James Kendall (a 1917 Chemical Warfare Liaison Officer), *Breathe Freely! The Truth About Poison Gas*, G. Bell & Sons, London, 1938, pp. 11-13.

“... in spite of the tremendous scale of the violations it still took the Germans five years, from January 1933 when Hitler came in to around January 1938, before they had an army capable of standing up against the French and the British. At any time during that five-year period if the British and the French had had the will, they probably could have stopped the German rearmament program ... one of the most important aspects of the interwar period [was] the enormous and almost uncontrollable impulse toward disarmament ... As late as 1934, after Hitler had been in power for almost a year and a half, [British Prime Minister] Ramsey MacDonald still continued to urge the French that they should disarm themselves by reducing their army by 50 per cent, and their

air force by 75 per cent. In effect, MacDonald and his supporters urged one of the least aggressive nations in Europe to disarm itself to a level equal with their potential attackers, the Germans. ... *Probably as much as any other single group I think that these men of good will can be charged with causing World War II.* [Emphasis by Kahn.]. ... At no time did Hitler threaten to initiate war against France and England. He simply threatened to 'retaliate' if they attacked him. ... an obvious prototype for a future aggressor armed with H-bombs”

- H. Kahn, *On Thermonuclear War*, 1960, pp. 390-1 and 403.

Future President John F. Kennedy's college thesis, *Why England Slept*, Sidgwick & Jackson, London, 1962 (first published 1940), pages 7, 169, 170 and 179:

Page 7: “What had England been doing while Hitler was building up this tremendous German Army?... To say that all the blame must rest on the shoulders of Neville Chamberlain or of Stanley Baldwin is to overlook the obvious. As the leaders, they are, of course, gravely and seriously responsible. But, given the conditions of democratic government, a free press, public elections, and a cabinet responsible to Parliament and thus to the people, given rule by the majority, it is unreasonable to blame the entire situation on one man or group.”

Page 169: “... I believe, as I have stated frequently, that leaders are responsible for their failures only in the governing sector and cannot be held responsible for the failure of a nation as a whole ... I believe it is one of democracy's failings that it seeks to make scapegoats for its own weaknesses.”

Page 170: “Herbert Morrison, the able British Labour Leader ... was being criticised in 1939 for co-operating with the Government ... ‘At the beginning I got plenty of abuse from the irresponsibles because I said that Labour administrators must play their full part in A.R.P. [Air Raid Precautions, i.e. civil defense], which was denounced as a fraud and a plot... to create war psychology. For Labour local authorities to co-operate with state departments in this task was treachery ... no A.R.P. could possibly be effective’.”

Page 179: “... the dictator is able to know exactly how much the democracy is bluffing, because of the free Press, radio, and so forth, and so can plan his moves accordingly.”

Kennedy stuck to his guns with civil defense. After the first Russian nuclear weapon test, he wrote a public letter to President Truman warning of the risk of an "atomic Pearl Harbor", published in the *New York Times* of 10 October 1949. Kennedy also attended the 22-26 June 1959 nuclear war congressional hearings which featured Herman Kahn on civil defense, and Kennedy used the supposed missile gap as the basis for his Presidential election campaign (which in the end only appeared in about 1975 when the USSR achieved parity and went on bankrupting itself by churning out more missiles). Kennedy set up the public fallout shelter allocation in 1961. All of this goes back to his time in the American Embassy in 1939 and the research he did into the connection between British civil defense apathy in the 1930s and appeasement (even encouragement) of fear exploiting Nazi thugs. **He could see that aggressors are all alike: they are all self-deluded, they all have an ideology, and they all use fear-mongering lies.**

Professor Susan R. Grayzel, *At Home and Under Fire: Air Raids and Culture in Britain from the Great War to the Blitz* (Cambridge University Press, 2012) finds that (p176): “a variety of voices reflected on the enormous destructive potential of air power in interwar Britain, and many determined to prevent the imagined horrors of the next war from coming true. Several important constituent bodies of the nation – including key segments of women, trades unionists, and members of the state itself – worked fervently for disarmament and to challenge efforts to accept aerial and perhaps even chemical attacks as somehow inevitable in a future war.”

Pro-disarmament propaganda which was based entirely on exaggeration of weapons and war effects (ignoring the real dangers of ideologies like racist eugenics and ethnic cleansing) and denials of civil defense efficiency went largely unopposed until 1938, partly due to official secrecy to keep both the enemy and the public ignorant (while they were being sold exaggerations by the media). To be heard, disarmament activists

had the temerity to falsely dismiss all countermeasures, to exaggerate the scale of potential attacks, and to ignore the fact that countermeasures were a tried and tested solution (unlike disarmament without civil defense, i.e. complete vulnerability). Public apathy allowed doom exaggerations to be mainly supported or allowed to circulate without correction. How many newspapers, popular historians, or TV stations stand up and publish the facts on nuclear weapons and Hiroshima today? None. Civil defense has never had any backing and has always been violently opposed by ideologies which prefer war. When Noel-Baker claimed to have an "authority" which proved a consensus of gas war experts who knew gas had no countermeasure, he was simply lying to the nation. In any case, his claim that science is determined by a religious type consensus, was again lying to the nation, because science is distinguished from political agreements by its factual evidence rather than its fashionable popularity and the number of votes its adverts gain.

For a full analysis of the small amount of fallout measured in Hiroshima and Nagasaki, see **W. McRaney and J. McRaney, *Radiation dose reconstruction U.S. occupation forces in Hiroshima and Nagasaki, Japan, 1945-1946*, DNA 5512F, 1980**, and for a comparison of the fallout pattern to self-induced rainout computer predictions see **Charles R. Molenkamp, *An Introduction to Self-Induced Rainout*, URCL-52669, 1979**, and ***Numerical Simulation of Self-Induced Rainout Using a Dynamic Convective Cloud Model*, UCRL-83583, 1980**. Neutron-induced activity dose rate and decay rate data from the 2002 Japanese dosimetry project (DS02) is linked [here](#) and is verified by neutron induced activity in debris from both cities. The only fully scientific (quantitative) discussion of the relative contributions of initial flash radiation, neutron induced activity, and fallout as a function of burst altitude is given in Chapter 5 (Nuclear Radiation Phenomena) of Dolan's effects manual EM-1.

White shows that Hiroshima's Post Office, 0.12 mile from ground zero, was gutted by fire hours later well in the firestorm, but over 50% of its 400 occupants had already survived the explosion and escaped. Photos of the final burned out areas show firestorm effects which occurred after survivors had time to escape, not unsurvivable, instant *Encore*-type thermal radiation-induced newspaper-filled inflammable room flashover in a dry desert. The firestorm in Hiroshima took 2-3 hours to reach a maximum intensity. The secret (full) U. S. Strategic Bombing Survey May 1947 report on Hiroshima interviewed over 1,000 survivors, and their evidence was that the fires were started by the blast wave overturning the obsolete charcoal braziers in obsolete city-centre wooden housing slums, which were full of inflammable paper screens and bamboo furnishings. The report shows that no building in Hiroshima had any fire-sprinkler system, and that the only fires started inside modern buildings by thermal radiation were in black coloured (heat absorbing) blackout air-raid curtains within 2,500 feet of air zero (close to ground zero). These and firebrands entering the Bank of Hiroshima through broken windows were easily extinguished by survivors with water buckets, in the centre of the "firestorm".

This obsolete mechanism caused the firestorm, not thermal flash ignition, which cannot directly ignite sound wood. The danger from exaggerations of weapons effects in order to underplay civil defense and leave yourself vulnerable to an enemy was clearly demonstrated in the 1930s, when British Government scientists exaggerated war effects. They exaggerated the effects by using the July 1917 surprise attack bombing data, when people stood outdoors during the air raid, or watched the explosions ignorantly from behind glass windows: exactly the situation at Hiroshima and Nagasaki, which were again surprise attacks. This exaggeration by using 1917 data led to Nazi appeasement in the 1930s, when they could have been stopped with minimal casualties if civil defense effectiveness was understood earlier. Civil defense did work to prevent a poison gas attack by the Nazis, despite gas masks never being 100% effective: the efficiency of the countermeasure was sufficient that the Nazis never tried to use their 12,000 tons stockpile of tabun nerve gas in WWII.

Civil defense did not need to be 100% effective in order to remove the attractiveness of "weapons of mass destruction" to coercive thugs wishing to threaten civilian targets. Exaggerations of weapons effects, by downplaying or ignoring simple countermeasure effectiveness prior to World War I, actually encouraged the warmongers to plan for WWI prior to 1914 in the belief of achieving a quick victory using big guns and other offensive weapons. By ignoring the efficiency of simple improvised blast and flying missile defenses like trenches against explosive blast, shelling, mortar fire, shrapnel and machine guns in the American Civil War, European planners exaggerated weapons effects predictions.

This exaggeration led to WWI by falsely predicting a quick and easy outcome from the use of offensive bombardment and machine guns against completely exposed and unprotected opponents. Simple trenches and gas masks in WWI proved highly effective at reducing casualties, thereby turning the war into a protracted affair that Germany had not prepared for. Thus, two world wars have proven conclusively that deceptive exaggerations and attacks on defensive countermeasures against explosive and contaminating weapons effects like blast and persistent mustard and nerve gas did not guarantee peace. Instead, weapons effects exaggerations for "peace" actually encouraged thugs to acquire precisely the most scare-mongered weapons for coercive intimidation, and to use them to threaten the unprepared into appeasement, causing wars.

Some myths debunked: 1. nobody was "vaporized": people are 70% water which has far too high a specific heat capacity and latent heat of vaporization even at ground zero, 2. fallout and neutron induced activity were insignificant compared to the initial nuclear radiation doses, because of the height of burst, 3. the long term effects of radiation were trivial compared to the natural cancer rate in an unexposed control group, and genetic effects were insignificant, 4. conventional weapons killed more people and resulted in more deaths and suffering because conventional wars lasted for years: the "blunt knife" is more dangerous overall, because it is likely to slip and cause injuries, because you need to use more force on a blunt knife to achieve any given result, 5. shallow underground bursts avert collateral damage around bunkers, while retaining credible deterrence. Downwind fallout can be washed or brushed off, and nuclear radiation is attenuated by buildings, 6. nuclear weapons with individually larger areas of effects are actually easier to protect against than an immense number of conventional weapons, because the blast wave is delayed for a longer period of time after the bright visible flash over most of the damaged area: fashionable lying "films" falsely superimpose the sound on the flash to "discredit" civil defense, one of the most sinister deceptions. The same applies to fallout: the further an effect has to travel, the longer it takes to arrive, so there is time to evacuate or to take cover in a safe building. Conventional weapons failed to deter two world wars, which explains why Cold War nuclear weapons were relied upon for deterrence. Anti-civil defense propaganda for nuclear disarmament politics is reducing not only deterrence but public safeguards against nuclear terrorism. Nuclear disarmament will put the clock back to the pre-nuclear era of conventional world wars. Nuclear safeguards and inspections will simply drive proliferation further underground, or risk war in themselves (just as 1930s efforts to oppose proliferation risked starting a war).

"If individuals feel they can do little about possible dangers, they have to flee from such threats by the use of denial. ... such individuals are not prepared to deal with the danger situation when it appears. ... In the early days of training for nuclear disaster, we stressed the number of casualties that even a nominal bomb could produce. Our listeners were alarmed, thinking, 'How could we care for a thousand burn cases when only four or five such cases demoralize our hospital?' The result of this approach was to lose our audiences."

– Albert J. Glass, MD, "Mass Psychology: the Determinants of Behavior under Emergency Conditions," *Mass Burns: Proceedings of a Workshop*, U.S. National Academy of Sciences, Washington, D.C. (linked here), pp. 11-20 (quotations from pages 13-14).

Exposed burned skin evaporates water at the rate of 10 litres/m²/day, which dries out and cools the body temperature, and this water evaporation rate is the *actual physical mechanism* behind the well-known dehydration, hypothermia, and shock in serious burns victims. The exposed burned skin also offers direct entry to the body tissues for bacterial infections (sepsis) which overwhelm the immune system and in combination with lowered temperature due to evaporation, escalate to pulmonary complications, and also allow direct contamination with radioactive fallout particles after a nuclear attack. Because severely burned victims reject food, they soon lose the energy needed to recover due to the cooling from water evaporation from the burned areas. At Hiroshima nothing was done to address the causal mechanism for burns mortality, instead efforts were made to treat dehydration by providing more fluids and antibiotics for infection. *Reversing this whole approach*, in order to actually *prevent* the underlying *causes* of these secondary effects in an emergency situation (nuclear attack), it has been found that simply covering exposed severe burns wounds with plastic film has been proved to avoid or reduce the immense evaporation of water which actually causes *all* of these immediate dehydration, shock, and hypothermia effects, and also much of the infection and contamination danger in the first place.

See Carl Jelenko, III, MD, "The Burn Surface as a Parasite: Water Loss, Caloric Demands, and Therapeutic Implications" and E. J. L. Lowbury, "The Prevention of Sepsis in Burns" (which shows in table 2 that 70% mortality from infected burns is reduced to 5% mortality if the burns are not infected) in *Mass Burns: Proceedings of a Workshop*, U.S. National Academy of Sciences, Washington, D.C. (linked here).

Think Plastic Wrap as Wound Dressing for Thermal Burns

ACEP (American College of Emergency Physicians) News

August 2008

By Patrice Wendling

Elsevier Global Medical News

CHICAGO - Ordinary household plastic wrap makes an excellent, biologically safe wound dressing for patients with thermal burns en route to the emergency department or burn unit. The Burn Treatment Center at the University of Iowa Hospitals and Clinics, Iowa City, has advocated prehospital and first-aid use of ordinary plastic wrap or cling film on burn wounds for almost two decades with very positive results, Edwin Clopton, a paramedic and ED technician, explained during a poster session at the annual meeting of the American Burn Association. "Virtually every ambulance in Iowa has a roll of plastic wrap in the back," Mr. Clopton said in an interview. "We just wanted to get the word out about the success we've had using plastic wrap for burn wounds," he said. Dr. G. Patrick Kealey, newly appointed ABA president and director of emergency general surgery at the University of Iowa Hospital and Clinics, said in an interview that plastic wrap reduces pain, wound contamination, and fluid losses. Furthermore, it's inexpensive, widely available, nontoxic, and transparent, which allows for wound monitoring without dressing removal. "I can't recall a single incident of it causing trouble for the patients," Dr. Kealey said.

Professor Eugene P. Wigner, "Why Civil Defense: A consideration of its effects if war comes, if not, and on the likelihood of nuclear war", *The Technology Review*, v66 (1964), no. 8, pp. 21-23:

"No one, least of all the soldier, thought it ill-fitting or cowardly to seek protection ... rather than to meet enemy shells fatally in the open. ... Let us assume, for example, that the United States and the Soviet Union reach some accord on gradual disarmament, and that many weapons and missiles are destroyed. ... If some small country, ruled by a dictator, built or otherwise acquired a few megaton-size weapons, its ruler might be tempted to threaten the U.S. with a few bombs with primitive delivery systems, such as mined merchant ships or concealed bombs in cities, to gain a free hand in his part of the world. ... It often has been said that the protection of our population might make our leaders more aggressive ... The *absence* of civil defense also could generate aggressiveness in leaders aware of the advantages of striking the first blow."

'Restricted' classified U.K. Home Office Scientific Adviser's Branch journal Fission Fragments, W. F. Greenhalgh, Editor, London, Issue Number 3, August 1962, pages 22-26:

'The fire hazard from nuclear weapons

'by G. R. Stanbury, BSc, ARCS, F.Inst.P.

'We have often been accused of underestimating the fire situation from nuclear attack. We hope to show that there is

good scientific justification for the assessments we have made, and we are unrepentant in spite of the television utterances of renowned academic scientists who know little about fire. ...

'Firstly ... the collapse of buildings would snuff out any incipient fires. Air cannot get into a pile of rubble, 80% of which is incombustible anyway. This is not just guess work; it is the result of a very complete study of some 1,600 flying bomb [V1 cruise missile] incidents in London supported by a wealth of experience gained generally in the last war.

'Secondly, there is a considerable degree of shielding of one building by another in general.

'Thirdly, even when the windows of a building can "see" the fireball, and something inside is ignited, it by no means follows that a continuing and destructive fire will develop.

'The effect of shielding in a built-up area was strikingly demonstrated by the firemen of Birmingham about 10 years ago with a 144:1 scale model of a sector of their city which they built themselves; when they put a powerful lamp in the appropriate position for an air burst they found that over 50% of the buildings were completely shielded. More recently a similar study was made in Liverpool over a much larger area, not with a model, but using the very detailed information provided by fire insurance maps. The result was similar.

'It is not so easy to assess the chance of a continuing fire. A window of two square metres would let in about 10^5 calories at the 5 cal/cm^2 range. The heat liberated by one magnesium incendiary bomb is 30 times this and even with the incendiary bomb [which burns for 15 minutes, not the few seconds or less for a nuclear flash] the chance of a continuing fire developing in a small room is only 1 in 5; in a large room it is very much less.

'Thus even if thermal radiation does fall on easily inflammable material which ignites, the chance of a continuing fire developing is still quite small. In the Birmingham and Liverpool studies, where the most generous values of fire-starting chances were used, the fraction of buildings set on fire was rarely higher than 1 in 20.

'And this is the basis of the assertion [in Nuclear Weapons] that we do not think that fire storms are likely to be started in British cities by nuclear explosions, because in each of the five raids in which fire storms occurred (four on Germany - Hamburg, Darmstadt, Kassel, Wuppertal and a "possible" in Dresden, plus Hiroshima in Japan - it may be significant that all these towns had a period of hot dry weather before the raid) the initial fire density was much nearer 1 in 2. Take Hamburg for example:

'On the night of 27/28th July 1943, by some extraordinary chance, 190 tons of bombs were dropped into one square mile of Hamburg. This square mile contained 6,000 buildings, many of which were [multistorey wooden] medieval.

'A density of greater than 70 tons/sq. mile had not been achieved before even in some of the major fire raids, and was only exceeded on a few occasions subsequently. The effect of these bombs is best shown in the following diagram, each step of which is based on sound trials and operational experience of the weapons concerned.

'102 tons of high explosive bombs dropped -> 100 fires

'88 tons of incendiary bombs dropped, of which:

'48 tons of 4 pound magnesium bombs = 27,000 bombs -> 8,000 hit buildings -> 1,600 fires

'40 tons of 30 pound gel bombs = 3,000 bombs -> 900 hit buildings -> 800 fires

"Total = 2,500 fires

"Thus almost every other building [1 in 2 buildings] was set on fire during the raid itself, and when this happens it seems that nothing can prevent the fires from joining together, engulfing the whole area and producing a fire storm (over Hamburg the column of smoke, observed from aircraft, was 1.5 miles in diameter at its base and 13,000 feet high; eyewitnesses on the ground reported that trees were uprooted by the inrushing air).

'When the density was 70 tons/square mile or less the proportion of buildings fired during the raid was about 1 in 8 or less and under these circumstances, although extensive areas were burned out, the situation was controlled, escape routes were kept open and there was no fire storm.'

Modern buildings in modern cities do not suffer firestorms.

"The only way to win a war is to escalate it one way or another above what the enemy can endure. If we feel that we cannot win without unacceptable risk we have no business fighting in the first place.

"There are just two checks on escalation. One is the waning of motivation for fighting the war in the first place. A long grinding war of attrition on the ground might achieve this ... The second check on escalation is to so overwhelm your enemy with such heavy and rapid destruction that he loses all hope of winning. Then surrender is an attractive choice when compared to inevitable defeat or certain death. This, of course, is the way we brought Japan to terms in 1945. *It was unnecessary to invade with infantry and fight a ground war.* We seem to have forgotten this fact. Even though Japan had four million troops under arms with two million guarding her shores, not a shot was fired. We invaded with fourteen hundred military administrators, by air. Not a life was lost in this invasion.

"The Japanese had been highly motivated to wage war against us. Kamikaze tactics and no-surrender policies were typical. Yet a realization that Japan simply could not win and the certainty that continued resistance meant mounting devastation caused her to toss in the sponge. ... In the final analysis, hundreds of thousands of lives were saved and dozens of cities spared ... In Korea ... there were three and a half million military casualties on both sides during three years of drawn-out war. Over a million civilians were killed ..."

- General Curtis E. LeMay, *America is in Danger*, pages 307-9.

General Curtis Emerson LeMay (1906-90) developed and led the B-17 and B-24 incendiary bombing missions first in Europe and then B-29 missions in the Pacific during World War II, including control of incendiary raids and the two nuclear attacks. In the Cold War he headed the Berlin airlift of 1948, was the founder of SAC (the Strategic Air Command), and from 1961-5 was Chief of Staff of the USAF, retiring after arguments with Defense Secretary Robert McNamara over the Vietnam War. LeMay advised declaring war on North Vietnam (which McNamara refused to do) and the escalatory winning tactics that had proved successful against Japan without requiring a ground invasion of Japan in 1945. McNamara instead initially used the failing flexible response efforts to try to encourage negotiation with the least possible force, and later a gradual rather than overwhelming vertical escalation which simply resulted in media criticism for the killing of civilians with no positive result. While LeMay requested the bombing of North Vietnam harbors, but McNamara preferred to leave them untouched and bomb insurgent camps and supply routes within Vietnam, claiming that LeMay's scheme would kill Soviet Union advisers in supply ships in the harbors of North Vietnam, escalating the war horizontally, destabilizing Europe.

General Curtis E. LeMay's 5 June 1968 book *America is in Danger* (Funk and Wagnalls, New York) is still valid today, and it predicted on page 307 that America was going to lose in Vietnam, if McNamara's graduated response war policy continued. The book jacket clearly summarizes LeMay's case: "America is in danger. ... We find ourselves in a purely defensive role, unable to make our will felt even in a conflict with a backward jungle country. ... Our strategic nuclear superiority has given us much diplomatic strength in the past. Do we still have that strength? ... I think not. That is why America is in grave danger. ... Assessing the strategic situation, General LeMay argues that our former

policy of overwhelming nuclear superiority proved itself during the crises in Berlin, Taiwan, and Cuba, and produced twenty years of relative peace. Yet the current Administration has opted for a new and untested posture that permits, even encourages parity with Russia.”

On pages viii-ix LeMay explains that the worst wars are caused by dogmatic censorship in democracy:

“The equivocal manner in which we are waging the war in Southeast Asia [Vietnam] is a direct result of the bankrupt nature of a deterrent policy. ... ‘defense intellectuals’ go unchallenged simply because the experienced professional active duty officers are officially prohibited from entering into public debate. ... In 1916 while war in Europe was raging, President Woodrow Wilson banished from Washington a few officers at the Army War College who had the temerity to plan for war. ... I. S. Block, ‘proved’ statistically in a popular book *The Future of War*, and in numerous speeches, that war was an economic impossibility [Norman Angell’s *Great Illusion* in 1908 deluded Britain into viewing war as economically absurd, but was still awarded a Knighthood and a Nobel Peace Prize after WWI, since facts are always distorted to fit in to a hardened ideology]. His disciples (among whom was David Starr Jordan) were still plugging this doctrine in America in the face of the Battles of the Marne and the Somme.

“Just a few months before Sarajevo in 1914, David Starr Jordan, President of Stanford University and a renowned naturalist, said, ‘It is apparently not possible for another real war among the nations of Europe to take place.’ ... Before World War II the military profession was again pre-empted by the ‘defense intellectuals.’ ... The Kellogg-Briand Pact of 1928 had outlawed law in principle. The Washington Disarmament conferences of the 1930s, if not arriving at a treaty had at least condemned ‘offensive’ weapons. ... There was no one who could tell America that wars cannot be won with defensive weapons. ... In the Army Air Corps we developed the B-17 Flying Fortress almost clandestinely. ... Thirteen were ordered in 1937 and with them we worked out the tactics and strategies which carried the war to Germany and Japan ...”

On pages xiii-xiv, LeMay points out that in any war, be it Japan or Vietnam, there is no certain quantitative prediction possible of the effect of weapons on the will of the enemy to resist or surrender, and this factor must be either omitted or faked in all computer “predictions”:

“We computerized every activity susceptible to machine analysis long before most businesses or other government agencies ... What we did *not* do was to force non-quantifiable data into a quantified mold in order to feed it to the machines. ... when defense intellectuals attempt, in deadpan seriousness, to quantify the effect that x number of casualties will have on the government or the will to resist, they are entering the Land of Oz. Some countries have succumbed, as France did in 1940, with minor casualties. Carthage and Paraguay (in 1870) show that other countries never give up, no matter what the casualties. ... Such unknowns in the strategic equation are anathema to the quantifier.”

LeMay elaborates this on page 77:

“An enraged country may go to war against impossible odds, with no logical change of victory. This is another example of weakness in the concept of deterrence – the possibility of the *illogical* reaction. Thus did Paraguay fight against an overwhelming alliance of Brazil, Argentina, and Uruguay in 1864. So did little Serbia stand up to the great Austria-Hungarian Empire in 1914. And thus did England and France declare war on Germany in 1939 ... Almost any country can be pushed too far, as was Hungary in 1956. It then feels compelled to fight regardless of the consequences. Patrick Henry’s remark ‘give me liberty or give me death’ is not an isolated human decision.”

LeMay’s points out that Defense Secretary McNamara’s failure in the Vietnam War was due to the abuse of science, in fiddling computer model assumptions about the political response to the enemy to military coercion. LeMay on page 89 shows that this failure of analysis in Vietnam also applies to general nuclear war deterrence planning, e.g. McNamara’s 1967 Posture Statement: “To deter deliberate nuclear attack upon the United States ... ability to inflict an unacceptable degree of damage ...” Here the word “unacceptable” is a subjective function of the emotional state of mind of the enemy.

Anti-nuclear war propaganda like Kubrick’s pseudoscience film *Dr Strangelove* is attributed by LeMay on pages 8-12 to ideologues (the pseudo-pacifists, the pseudo-moralistic crusaders, and the well-meaning media whose lying “anti-war” propaganda lay behind previous wars):

“This large peace-time military establishment has allowed many scaremongers to capitalize on the traditional anti-military American attitudes and thus sell books and movies. ... It is like yelling fire in a crowded theatre. Some ... is encouraged by our enemies to weaken faith in our military leadership and thus to undermine our resolve or capability for self-defense. Some of it, of course, is a perfectly legitimate concern over how a large, perpetual military establishment will change our system of values, society, and government. ... One must keep in mind the communist technique of ‘boring from within.’ ... History illustrates that the first act of a dictator is to distort and suppress the news. Free speech and press permit the truth to be aired and opposing opinions to be expressed. ... The world is moving too fast today, particularly in technology, for us to be tied to a monolithic organization which stifles all thought outside its own party line of hackneyed solutions. ... One of the greatest dangers in a military estimate of any situation is to believe, through party-line strategic concepts, that you *know* what the enemy will or will not do. We *knew* that Japan would not attack Pearl Harbor, our best-defended outpost. ... We *knew* that the Soviet Union would not put nuclear intermediate range ballistic missiles in Cuba. ... We must – but do not – have a defense organization which permits controversy, which permits the ‘unthinkable’ condition to be debated freely, which permits the screwball idea to come forth, and which tolerates the maverick officer. The Andrew Jacksons, the Zachary Taylors, the Ulysses S. Grants, the George Deweys, the Alfred Thayer Mahans, the Billy Mitchells, are not nurtured in orthodoxy. They are not products of a party line.”

In a chapter on the “Proliferation of Nuclear Weapons” LeMay explains on page 204 that although “Every large war, of course, is sparked by some relatively minor event, as the murder at Sarajevo in 1914 or the Nazi march into Poland in 1939”, ignition sparks are not the fuel. The straw that breaks the camel’s back is not the sole or even the major problem:

“The small countries of Austria, Czechoslovakia, or Poland most certainly cannot be accused of ‘catalytic’ behavior during these tense times. Should Poland have succumbed for the sake of world peace? The small country argument is sometimes related to the ‘statistical’ theory. As more countries get the bomb, goes the reasoning, *something* is likely to happen that will cause a bomb to go off. ... This fear should be laid to rest. The number of nuclear bombs and warheads have already proliferated to the thousands and the first accidental nuclear explosion has yet to occur. ... For example, on December 8, 1964, a B-58 Hustler bomber with a ‘nuclear device’ in its bomb bay caught fire at Bunker Hill Air Force Base, Indiana ... no radioactive contamination occurred. Of the four bombs dropped from a B-52 off Palomares, Spain, as a result of a refueling collision in 1966 ... there was some relatively harmless contamination caused by two which broke up. A nuclear bomb is a highly complicated device and many sequential steps must be taken to light it off. ... At worse, the chemical high explosive components of a bomb might detonate from fire and scatter some nuclear material which could cause a small area to become mildly and harmlessly radioactive, as in Spain. Nothing of this sort is liable to lead to a nuclear war.”

On pages 242-260, in his chapter on “Counterinsurgency and the War in Vietnam”, LeMay points out:

“It is a war waged simultaneously on many fronts and in many forms. It is a cold war and a hot war, and economic war and a political war, a propaganda war and an ideological war. It is waged by the communists according to their own timetable and on battlefields of their choosing. ... By 1965 we were bombing North Vietnam and landing combat troops to engage with the Viet Cong. Yet the South Vietnamese army was shot with desertions and down to one-third strength. Equipment worth millions of dollars from the United States was finding its way into Viet Cong hands. ... It is a war of flexible response not designed to win but rather to punish, and to punish only enough to bring the Hanoi government to the conference table. ... It is a war where our powerful Navy allows foreign ships to supply the enemy with war materials. ... It is a war where we allow the one principal harbor – the harbor through which the large majority of enemy supplies must flow – to remain undamaged. ... This is the war of flexible response and graduated deterrence applied for the first time. This is the war concocted by the arms controllers of the Kennedy-Johnson Administrations to prevent, they believed, the feared nuclear holocaust. The consequences of such a cruel non-war will be heartache, frustration, and death, rather than a reasonable political settlement. We *must* change our strategy. ...

“The long, drawn-out conflict has created dissension, disillusion, and dispute in America. It has seemed to foster a greater sense of determination and purpose in North Vietnam. ... Oriental stoicism and patience make North Vietnam willing to extend the struggle from generation to generation, or so they say, to have a ‘protracted war’. ... we are fighting with the commodity most precious to us ... the lives of men. And what is our objective? To negotiate. ... Our continued pleas for peace and talks can only leave an impression of irresolution, which encourages North Vietnamese resistance. ... we dribbled in reinforcements, taking one half-measure after another in the ‘graduated’ manner

of flexible response, pursuing a peculiar strategy which said, in effect, 'Fight the enemy on his own terms.' ... we must fight the war from our position of strength, not theirs. We must fight it at the lowest cost to ourselves and at the greatest cost to the enemy. ... Probably the weirdest aspect of this Alice-in-Wonderland war is that we have dropped more explosive on Vietnam than we did on Germany in World War II. ... It is not air power that is wanting. It is the wrong *employment* of air power. ... The sanctuary we have granted to the port of Haiphong is one of the strangest anomalies in the history of warfare. During the past two years 827 ships have brought munitions and supplies to North Vietnam. Of these ships, 267 were Russian, 258 were Red Chinese, 94 were from Eastern European countries, *and 210 were ships of our alleged allies and foreign air recipients*. ... There are so many ways we could close that port! We could blockade it. We could bomb it to rubble. We could mine it. We could sink a ship in the entrance channel."

The American gradual response doctrine in Vietnam backfired and built up resistance and hardness in North Vietnam. When finally the bombing intensity was increased, the people were by then well accustomed to bombing and inured to bombing. Vietnam is the textbook example of what happens when you try to fight a politically correct war: not only do you lose militarily, but you also cause more destruction and suffering in the process of losing and then suffer more savage propaganda from the "peace" movement for having done so. In his chapter on "Limited War", LeMay explains how Einstein's equation can be used to intimidate an enemy thus actually preventing the usual massacre:

"Modern delivery systems make it possible to achieve great accuracy in placing weapons on target, and technology has made it possible to tailor the size of the nuclear yield to fit the situation [dial a yield]. The basic target system for nuclear weapons, as in all conflict, is the enemy's military capability ... The introduction of appropriate-sized nuclear weapons should insure an early termination of hostilities, reduce casualties among American and friendly forces, and limit, not expand, the amount of economic disruption and destruction ... As to the question of escalation to general nuclear war, it would seem that this is a matter which should concern the Communists more than it does the United States ... With United States superiority, the crossing of any threshold of escalation presents an outcome progressively worse for the Communists. Lacking a capability to fight and win a full-fledged war with the United States, they are obliged, in their own interests, to keep any war at a low level of intensity. ...

"The idea of controlled escalation is not valid when we are confronted by an irrational enemy. A country bent on suicide cannot be stopped short of that. ...

"1. Success in limited war is contingent upon maintaining a superior general war capability.

"2. Escalation must be feared most by the power with the weaker general war capability. ...

"Unless we start to win the wars we get into, we may find ourselves overextended around the world on several frontiers, fighting equivocal wars. To maintain such vast military forces America would become an armed camp with all our sons being drafted for these endless foreign wars. God forbid! The 1984 of George Orwell would be here. America could then offer little more to its citizens than communism does to its comrades."

In a chapter on "Military Superiority" at pages 273-309, LeMay explains that fashionable arms control and weapons parity is a dangerous policy because it encourages aggression and coercion by the enemy:

"The desire to reduce the huge expenditure for armed forces and armaments is universal. Measures to reduce the risk of war or its destructive nature are crucial matters to all. ... Why have physical scientists taken up arms control with such consummate zeal? Some scientists have suggested that there is a guilt complex at work. The physical scientists unleashed the horrible genie of nuclear energy and now they feel morally responsible for putting the genie back into the bottle. *The Bulletin of the Atomic Scientists* [which responded with a damning review of LeMay's book, written by Dr Ralph Lapp, ignoring the military lessons about war and quibbled about the yields of some Russian missiles] has beat this drum for almost two decades. Activists ... set out to change the national ethos by making nuclear war so horrible to contemplate that national defense with nuclear weapons would be considered immoral and unthinkable. ... This anti-nuclear movement is a highly charged, emotional 'cause' which has attracted many other groups. The peace organizations have joined with vim. Yet so have many able and well-intentioned politicians, diplomats, and businessmen. ... These are all people with a crusading zeal to do away with nuclear

weapons and save the world from nuclear war. ... They conceive of nuclear weapons to be the greatest evil in the world, and this thought seems to becloud all judgement, knowledge, and sometimes even loyalties. ...

“The accidental war concept was popularly launched by the novel *Red Alert* [by Peter George in 1958, which was made into Stanley Kubrick’s 1964 film *Dr Strangelove, or How I Learned to Stop Worrying and Love the Bomb* using cobalt bomb propaganda against LeMay, Kahn and Teller], a horror story describing a war started by a crazed SAC commander. ... Soon after the story was published in 1958, it was ordered that tactical pilots would be medically examined for possible mental abnormalities. The connection seems obvious. *Fail-Safe* by Burdick and Wheeler was a later thriller of similar plot. This impossible yarn related how a condenser blew in communications equipment, causing a bomber force to fly past its fail-safe point and attack Moscow. Such a ridiculously inaccurate story, deliberately twisting the whole concept of fail-safe which simply meant that if any part of the system failed the system was safe, was passed off by the authors as an authentic possibility, even a probability. Said the authors, ‘it represents a competent estimate of the technical and scientific factors involved in the ‘fail-safe’ system. ...

“War is *never* ‘cost-effective’ in terms of dollars and blood. People are killed. To them the war is total. You cannot tell bereaved wives, children, and parents that today’s war in Vietnam, for example, is a counter-insurgency exercise into which the United States is putting only a limited effort. Death is final, and drafted boys should not be asked to make this ultimate sacrifice unless the Government is behind them 100 percent. If we pull our punches how can we explain it to their loved ones? ... Our losses so far in Vietnam exceed those of the War of 1812, the Mexican War, and the Spanish-American War combined. Are we paying this price simply to help a friendly country stop outside aggression, or are we actually fighting expanding communism? ... we should never engage in a small war *unless we are prepared to fight and win a large war*. This is fundamental. ... The only way to win a war is to escalate it one way or another above what the enemy can endure. If we feel that we cannot win without unacceptable risk we have no business fighting in the first place.

“There are just two checks on escalation. One is the waning of motivation for fighting the war in the first place. A long grinding war of attrition on the ground might achieve this ... The second check on escalation is to so overwhelm your enemy with such heavy and rapid destruction that he loses all hope of winning. Then surrender is an attractive choice when compared to inevitable defeat or certain death. This, of course, is the way we brought Japan to terms in 1945. *It was unnecessary to invade with infantry and fight a ground war*. We seem to have forgotten this fact. Even though Japan had four million troops under arms with two million guarding her shores, not a shot was fired. We invaded with fourteen hundred military administrators, by air. Not a life was lost in this invasion.

“The Japanese had been highly motivated to wage war against us. Kamikaze tactics and no-surrender policies were typical. Yet a realization that Japan simply could not win and the certainty that continued resistance meant mounting devastation caused her to toss in the sponge. ... In the final analysis, hundreds of thousands of lives were saved and dozens of cities spared ... In Korea ... there were three and a half million military casualties on both sides during three years of drawn-out war. Over a million civilians were killed ...”

On pages 104-5, LeMay recommends ABM, pointing out that enemy nuclear missile warheads are vulnerable to initial nuclear radiation and X-ray ablation extending over immense distances in the vacuum of space by a defensive nuclear explosion, so they are shot down without having to “hit a bullet with a bullet”. On page 106, LeMay points out that on 10 November 1966 Defense Secretary McNamara publicly admitted that Russia was employing these ABM systems around Moscow and Leningrad. The three 300 kt Russian Operation K nuclear tests at altitudes of 290, 150 and 59 km on 22 and 28 October and 1 November 1962, respectively, were ABM system proof tests. Unlike American high altitude nuclear tests (where EMP damage on Hawaii was discovered purely by accident), Russia specifically instrumented burned power transmission lines and telephone lines for EMP damage research before setting off these nuclear tests. Russian unveiled its Griffon ABM in 1963 and “The Galosh ABM was displayed in a Moscow parade in November, 1964.”

Despite this proof-tested Russian ABM accomplishment which would have shot down rogue nuclear missiles falling on Moscow, America never protected its cities by ABM systems. Civil defense is also derided in democracies by utopian ideologies who are rewarded Nobel Peace Prizes for censoring out the facts.

“Appeasement seldom works in the long term ... appeasement will not prevent every possible attack.”

- Robert C. Harney, “Inaccurate Prediction of Nuclear Weapons Effects and Possible Adverse Influences on Nuclear Terrorism Preparedness”, *Homeland Security Affairs*, volume V, No. 3, September 2009, pp. 1-19 (quotation from page 18). (PDF here.)

“... before World War II, for example, many of the staffs engaged in estimating the effects of bombing overestimated by large amounts. This was one of the main reasons that at the Munich Conference, and earlier occasions, the British and the French chose appeasement ... Many people object to air and civil defense, not because they underestimate the problem, but because they overestimate it. They think there is nothing significant that can be done ...”

- Herman Kahn, testimony to the *Biological and Environmental Effects of Nuclear War*, Hearings before the Special Subcommittee on Radiation, Joint Committee on Atomic Energy, 86th Congress, 22-26 June 1959, Part 1, at pages 883 and 943. (139 MB PDF.)

“No folly is more costly than the folly of intolerant idealism.” - Winston Churchill

“U.S. leaders will be compelled to temper their objectives *visà-vis* nuclear-armed regional adversaries ...”

- David Ochmanek and Lowell H. Schwartz, *The Challenge of Nuclear-Armed Regional Adversaries*, RAND Corporation, 2008, Monograph MG-671-AF, pages xi-xii.

“... We learned about an enemy who is sophisticated, patient, disciplined, and lethal. ... We learned that the institutions charged with protecting ... did not adjust their policies, plans and practices to deter or defeat it.” - Thomas H. Kean (Chair) and Lee H. Hamilton (Vice Chair), Preface to *The 9/11 Commission Report*, National Commission on Terrorist Attacks Upon the United States, 2004.

Irving L. Janis, *Victims of Groupthink*, Houghton Mifflin, Boston, 1972

Janis, civil defense research psychologist and author of *Psychological Stress* (Wiley, N.Y., 1958), *Stress and Frustration* (Harcourt Brace, N.Y., 1971), and *Air War and Emotional Stress* (RAND Corporation/McGraw-Hill, N.Y., 1951), begins *Victims of Groupthink* with a study of classic errors by “groupthink” advisers to four American presidents (page iv):

“Franklin D. Roosevelt (failure to be prepared for the attack on Pearl Harbor), Harry S. Truman (the invasion of North Korea), John F. Kennedy (the Bay of Pigs invasion), and Lyndon B. Johnson (escalation of the Vietnam War) ... in each instance, the members of the policy-making group made incredibly gross miscalculations about both the practical and moral consequences of their decisions.”

Joseph de Rivera's *The Psychological Dimension of Foreign Policy* showed how a critic of Korean War tactics was excluded from the advisory group, to maintain a complete consensus for President Truman. Schlesinger's *A Thousand Days* shows how President Kennedy was misled by a group of advisers on the decision to land 1,400 Cuban exiles in the Bay of Pigs to try to overthrow Castro's 200,000 troops, a 1:143 ratio. Janis writes in *Victims of Groupthink*:

“I use the term “groupthink” ... when the members' strivings for unanimity override their motivation to realistically appraise alternative courses of action.”(p. 9)

“... the group's discussions are limited ... without a survey of the full range of alternatives.”(p. 10)

“The objective assessment of relevant information and the rethinking necessary for developing more differentiated concepts can emerge only

out of the crucible of heated debate [to overcome inert prejudice/*status quo*], which is anathema to the members of a concurrence-seeking group.”(p.61)

“One rationalization, accepted by the Navy right up to December 7 [1941], was that *the Japanese would never dare attempt a full-scale assault against Hawaii because they would realize that it would precipitate an all-out war, which the United States would surely win*. It was utterly inconceivable ... But ... the United States had imposed a strangling blockade ... Japan was getting ready to take some drastic military counteraction to nullify the blockade.”(p.87)

“... in 1914 the French military high command ignored repeated warnings that Germany had adopted the Schlieffen Plan, which called for a rapid assault through Belgium ... their illusions were shattered when the Germans broke through France's weakly fortified Belgian frontier in the first few weeks of the war and approached the gates of Paris. ... the origins of World War II ... Neville Chamberlain's ... inner circle of close associates ... urged him to give in to Hitler's demands ... in exchange for nothing more than promises that he would make no further demands.”(pp.185-6)

“Eight main symptoms run through the case studies of historic fiascoes ... an illusion of invulnerability ... collective efforts to ... discount warnings ... an unquestioned belief in the group's inherent morality ... stereotyped views of enemy leaders ... dissent is contrary to what is expected of all loyal members ... self-censorship of ... doubts and counterarguments ... a shared illusion of unanimity ... (partly resulting from self-censorship of deviations, augmented by the false assumption that silence means consent)... the emergence of ... members who protect the group from adverse information that might shatter their shared complacency about the effectiveness and morality of their decisions.”(pp.197-8)

“... other members are not exposed to information that might challenge their self-confidence.”(p.206)

William J. Broad, U.S. Rethinks Strategy for the Unthinkable, *New York Times*, December 15, 2010:

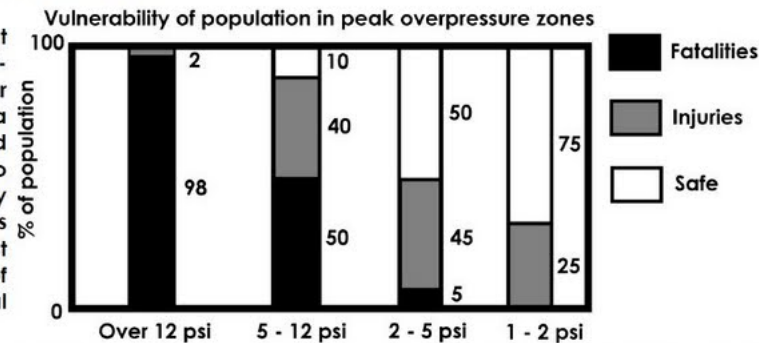
“But a problem for the Obama administration is how to spread the word without seeming alarmist about a subject that few politicians care to consider, let alone discuss. So officials are proceeding gingerly in a campaign to educate the public. “We have to get past the mental block that says it’s too terrible to think about,” W. Craig Fugate, administrator of the Federal Emergency Management Agency, said in an interview. “We have to be ready to deal with it” and help people learn how to “best protect themselves.” ... Administration officials argue that the cold war created an unrealistic sense of fatalism about a terrorist nuclear attack. “It’s more survivable than most people think,” said an official deeply involved in the planning, who spoke on the condition of anonymity. “The key is avoiding nuclear fallout.” ... “There’s no penetration of the message coming out of the federal government,” said Irwin Redlener, a doctor and director of the National Center for Disaster Preparedness at Columbia University. “It’s deeply frustrating that we seem unable to bridge the gap between the new insights and using them to inform public policy.” ... “Public education is key,” Daniel J. Kaniewski, a security expert at George Washington University, said in an interview. “But it’s easier for communities to buy equipment — and look for tech solutions — because there’s Homeland Security money and no shortage of contractors to supply the silver bullet.” ... Some noted conflicting federal advice on whether survivors should seek shelter or try to evacuate. ...

“In 2007, Congress appropriated \$5.5 million for studies on atomic disaster planning, noting that “cities have little guidance available to them.” The Department of Homeland Security financed a multiagency modeling effort led by the Lawrence Livermore National Laboratory in California. The scientists looked at Washington, New York, Chicago, Los Angeles and other big cities, using computers to simulate details of the urban landscape and terrorist bombs. ... The big surprise was how taking shelter for as little as several hours made a huge difference in survival rates. “This has been a game changer,” Brooke Buddemeier, a Livermore health physicist, told a Los Angeles conference. He showed a slide labeled “How Many Lives Can Sheltering Save?” ... Soon after Mr. Obama arrived at the White House, he embarked a global campaign to fight atomic terrorism and sped up domestic planning for disaster response. ... The agenda hit a

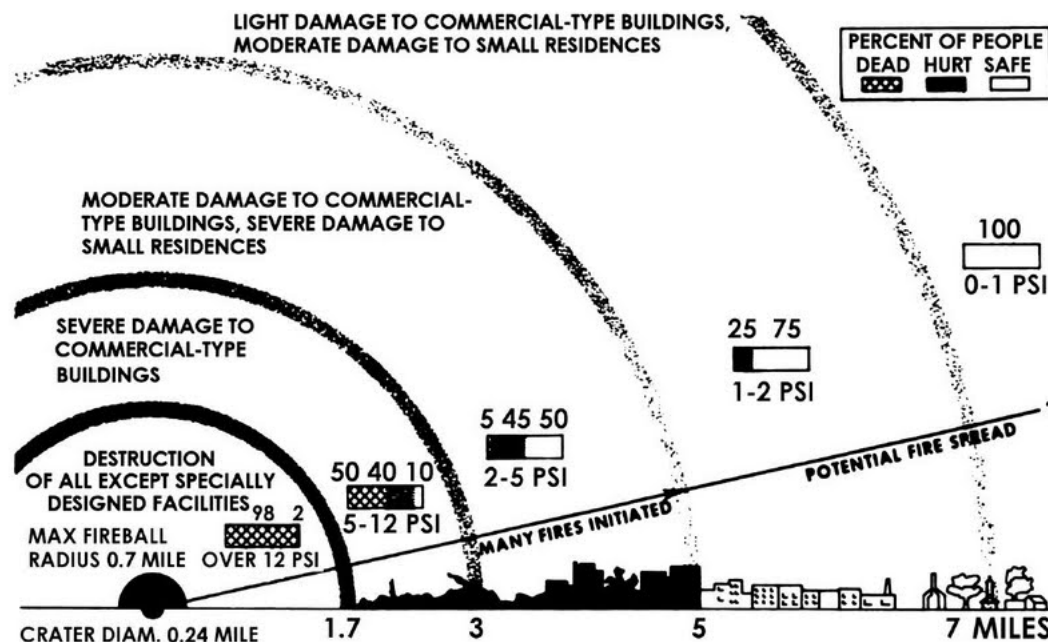
speed bump. Las Vegas was to star in the nation's first live exercise meant to simulate a terrorist attack with an atom bomb, the test involving about 10,000 emergency responders. But casinos and businesses protested, as did Senator Harry Reid of Nevada. He told the federal authorities that it would scare away tourists. Late last year, the administration backed down. "Politics overtook preparedness," said Mr. Kaniewski of George Washington University."

Hiroshima

Right: Figure 1 in the 1979 U. S. Office of Technology Assessment report, *The Effects of Nuclear War* exaggerates casualties enormously by conflating visible damage to brick veneered cinder block and wood frame houses in the Annie and Apple-2 Nevada tests with casualty rates, using a computer program that ignored drag friction and falsely assumed floors were ice skating rinks so people would be blown out of buildings by blast, being killed by gravity (the fall). Page 19: "the winds associated with as little as 2 to 3 psi could be expected to blow people out ... tests suggest that a typical residence will be collapsed by an overpressure of about 5 psi. ... The calculations used here assume a mean lethal overpressure of 5 to 6 psi psi for people in residences ..."

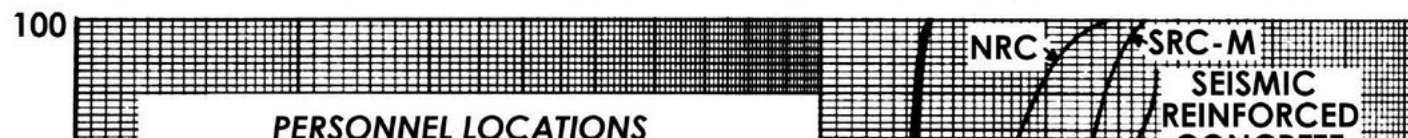


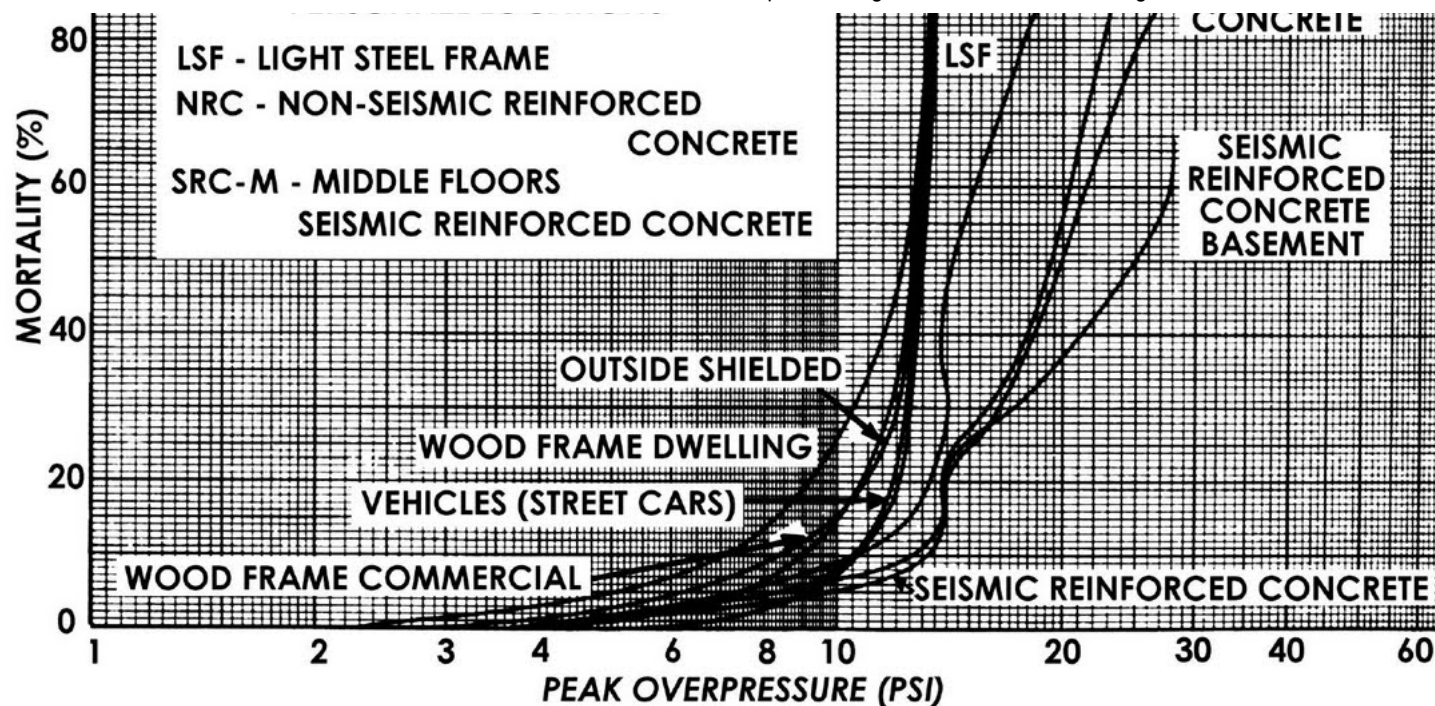
DIRECT EFFECTS OF 1 MT SURFACE BURST



Left: the 1973 U. S. Department of Defense DCPA Attack Environment Manual provided this casualty-versus-peak overpressure analysis, falsely associating the 5-12 psi peak overpressure zone with 50% mortality, without source. The earlier March 1961 draft U. S. Office of Civil and Defense Mobilization Operation Alert draft handbook, *Nuclear Weapons Phenomena and Characteristics*, alleged that 50% are killed at 2.5-7 psi peak overpressure, falsely assuming high mortality occurs where buildings are destroyed in nuclear tests. Such false "statistics" do not apply to modern concrete cities. The U.S. Office of Technology Assessment report on nuclear war in 1979 falsely claimed 50% are killed in houses at 5-6 psi peak overpressure. This is disproved by survival of 50% in wooden houses in Hiroshima at 12.2 psi peak overpressure (report DC-P-1060).

TOTAL MORTALITY VERSUS PEAK OVERPRESSURE IN HIROSHIMA



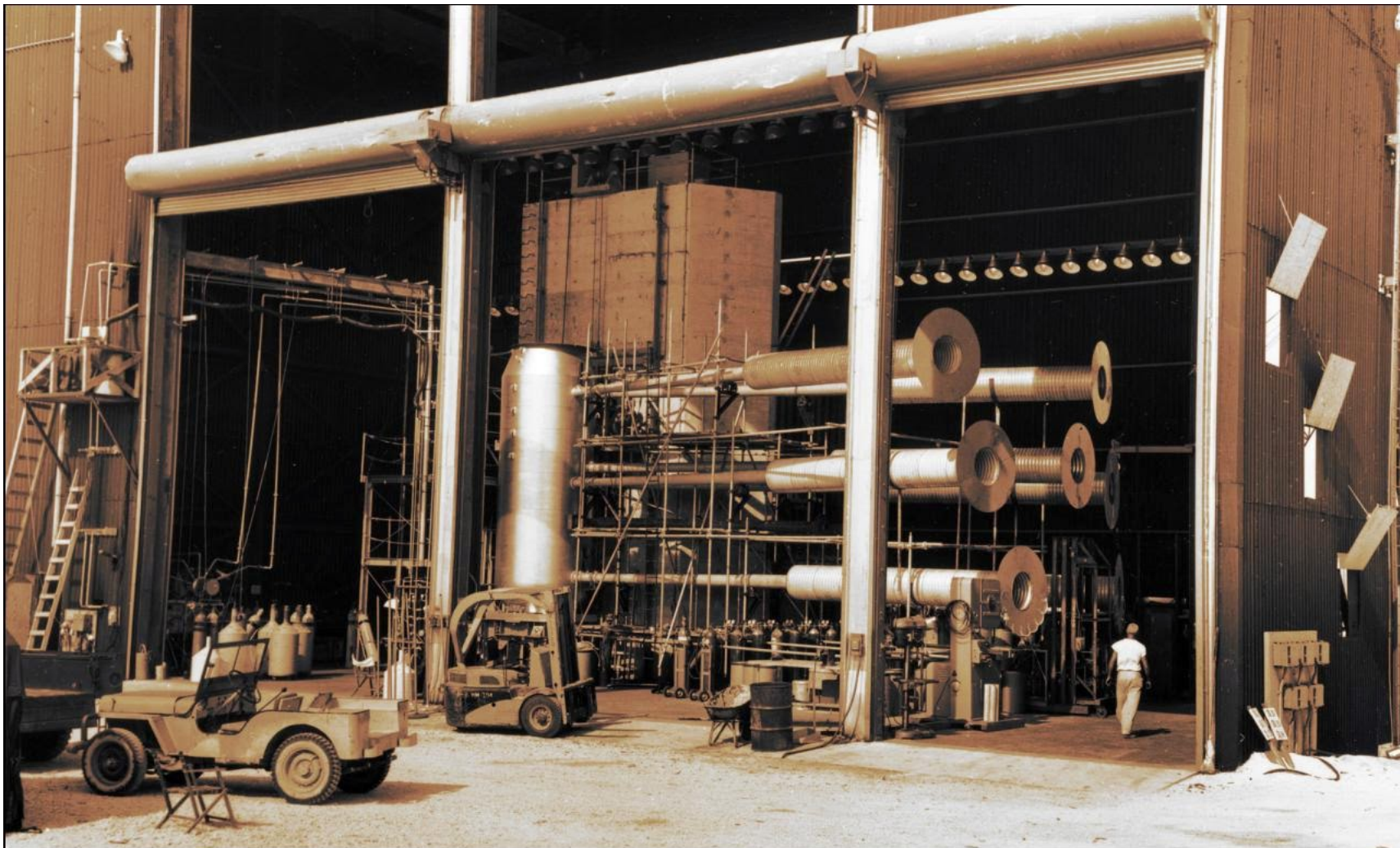


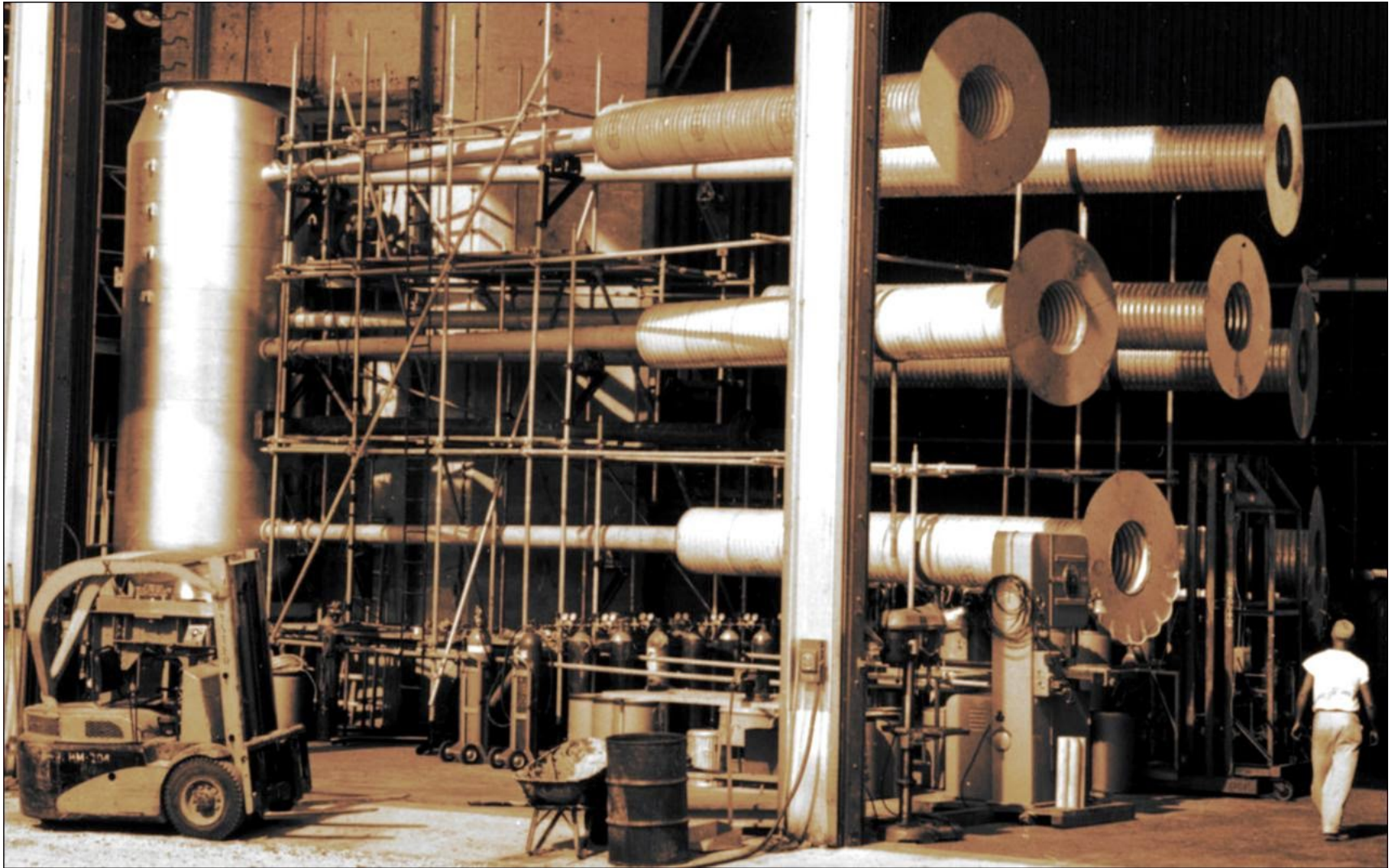
Above: the Dirkwood Corporation analysis of all nuclear effects (including firestorm and radiation) in Hiroshima as a function of peak blast overpressure, for various buildings. This data is from the report by L. Wayne Davis, et al., *Prediction of Urban Casualties and the Medical Load from a High-Yield Nuclear Burst*, DC-P-1060

(1968), based on 24,044 traced case histories in Hiroshima and 11,055 in Nagasaki (a total of 35,099 cases). At 10 psi there was 15% mortality in shadows outdoors, but 26% mortality in wooden houses, due to those trapped under debris in fires. Japanese air burst data supplement the 0.67 kt surface burst in Texas City, 1947.

10 Mt MIKE H-bomb, 1952





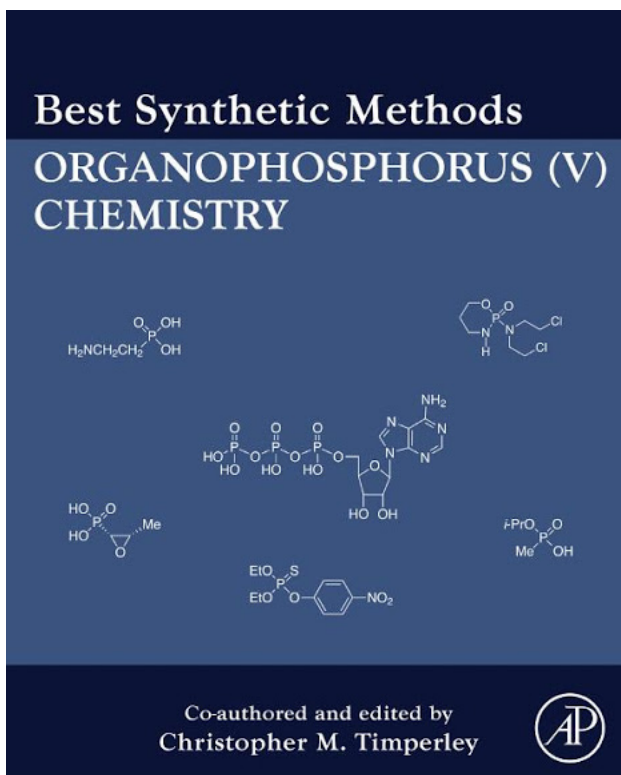


**Mk 17 thermonuclear weapon**

13.5 megaton Castle-Yankee aboard barge over Union
crater near Yurochli Island, Bikini Atoll (surface burst)

40% Li6, 60% Li7: 52% fission

Update (5 June 2015): The nuclear proliferation data secrecy problem and Dr Timperley's new Academic Press book "Organophosphorus (V) Chemistry" which covers nerve gases



Academic Press (Elsevier), 2015.

Christopher M. Timperley

Detection Department, Defence Science and Technology Laboratory (Dstl), Porton Down

Dr Chris Timperley's book "Organophosphorus (V) Chemistry" published 2015 by Academic press, for understanding nerve gas protection

Academic Press's modern chemistry series, *Basic Synthetic Methods*, now has a volume covering nerve gas chemistry and biological effects including protective measures and lethal doses, called ***Organophosphorus (V) Chemistry*, edited by Dr Christopher M. Timperley** of the Detection Department, Defence Science and Technology Laboratory (DSTL), Porton Down, Britain's chemical and biological protection laboratory. The letter V in parentheses denotes that the book deals with phosphorus of valency 5. Phosphorus has 5 electrons in its outer shell which has a capacity for 8 electrons, so has 5 electrons that can undergo bonding, but it can also bond by borrowing 3 electrons from other atoms to completely fill up its outer shell to 8 electrons. Thus, depending on whether it achieves chemical stability by loaning out 5 electrons to other atoms in a compound, or instead borrowing 3 electrons to fill up the outer shell, it can have a valency of either 5 or 3. The nerve gases and organophosphates of valency V in general employ valency 5, with 2 of the 5 electrons utilized in a double-bond to an oxygen atom, leaving 3 electrons to bond with various molecules that creates a variety of nerve gases, insecticides, anti-cancer drugs, and even fire-retardants (see illustration below).

It is really not surprising that the study of nerve gas type compounds has led to anti-cancer drugs. The very first effective chemotherapy agent for cancer was mustard gas, a discovery made by Louis Goodman and Alfred Gilman of Yale University, when they halted and subdued an aggressive, advanced cancer of the lymph system by using a sequence of small injections of nitrogen mustard gas (a liquid precursor of mustard gas, itself used in WWI for warfare) beginning on 27 August 1942, which prolonged the patient's life until 1 December. In 1948, Professor Alexander Haddow by trial and error experiments with tumours in rats, gradually modified the nitrogen mustard into other related chemicals that had even better results against cancer, with fewer serious side effects. Later research showed that the mechanism for many of the early anti-cancer drugs, from nitrogen mustard onward, was a chemical activation of apoptosis (cell self destruction) in fast-dividing cancer cells, which is normally prevented in cancer cells, since cancer arises, in the majority of cases, from DNA damage to the apoptosis and **DNA repair system**

controlled by protein enzyme **P53** (which becomes activated when P53 is removed from its inhibitor, MDM2). The analogy here is fire "resulting from" damage to the sensors of a fire-sprinkler (fire suppressor) system. By finding chemicals that can switch-on the natural tumour suppressor systems in cancer cells with defective apoptosis controllers, cancers are suppressed.

The story of nerve gas and its related organophosphate insecticides, anti-cancer drugs, and fire suppressors starts in November 1936, when the discoverer of the first nerve gases, Dr Gerhard Schrader, was hospitalized for 14 days with severe nerve gas poisoning, including the general nerve gas exposure symptom of contracted (pin point) eye pupils (illustration below). After Germany lost the war, Schrader was interrogated by the British Intelligence Objectives Sub-Committee (BIOS), and his secret report *The development of new insecticides and chemical warfare agents*, was published in BIOS's final report 714, item 8.

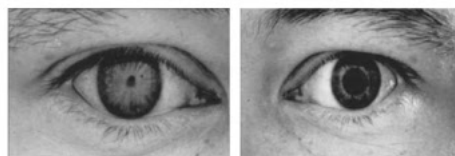


Figure 1.5.1 The eye on the left has developed miosis, in contrast with the eye on the right that is normal. Miosis is a constriction of the pupil to a pin-point size. The amount of light entering the eye and the powers of accommodation are greatly reduced. The condition results in photophobia, headaches and pain experienced in changing from bright to dull light. (Source: Photograph reproduced courtesy of Dstl.)

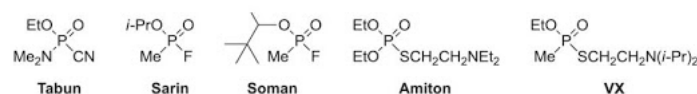


Figure 1.5.2 Some highly toxic organophosphorus compounds.

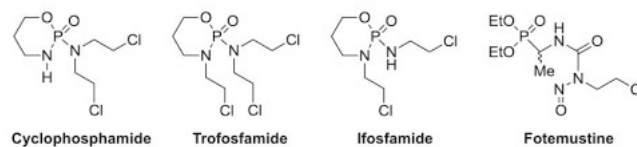


Figure 1.8.2 Some anticancer drugs that contain phosphorus.

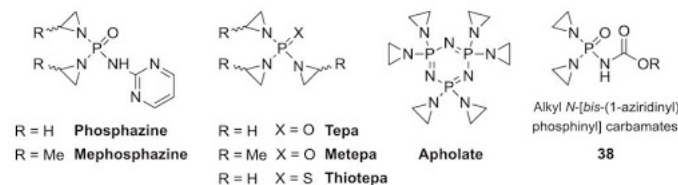


Figure 1.8.3 Anticancer drugs and chemosterilants that contain phosphorus.

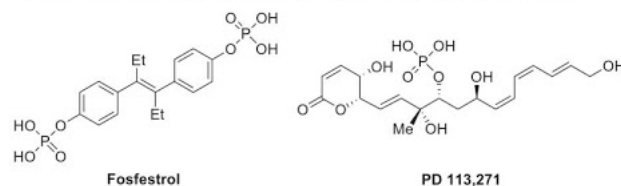


Figure 1.8.4 Fosfestrol and natural product PD 113,271 have anticancer activity.

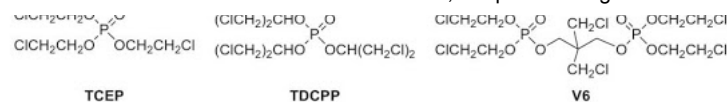




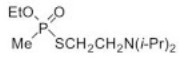


Figure 1.9.1 Chlorinated organophosphorus fire retardants.

Table 1.10.1.3 Toxicity of some of the most important nerve agents in man

Nerve agent	Structure	LC ₅₀ by inhalation (mg min/m ³)	LD ₅₀ on skin (mg/70 kg individual)
Tabun (GA)		200 ^a , 400 ^{b,c} , 135 ^d , 70 ^d	4000 ^a , 1000 ^{b,c} , 1500 ^d
Sarin (GB)		100 ^{a,b,c} , 70 ^d , 35 ^d	1700 ^{a,b,c,d}
Soman (GD)		100 ^a , 50 ^b , 70 ^{c,d} , 35 ^d	300 ^a , 350 ^{b,d} , 50 ^c
Cyclosarin (GF)		Unknown ^{c,d} , 35 ^d	30 ^c , 350 ^d
VX		50 ^{a,c} , 10 ^b , 30 ^d , 15 ^d	10 ^{a,b,c,d} , 5 ^d

Sources: ^a(295); ^b(296); ^c(297); ^d(298) 'existing' and Chemical Defense Equipment Process Action Team (CDEPAT)-recommended values.



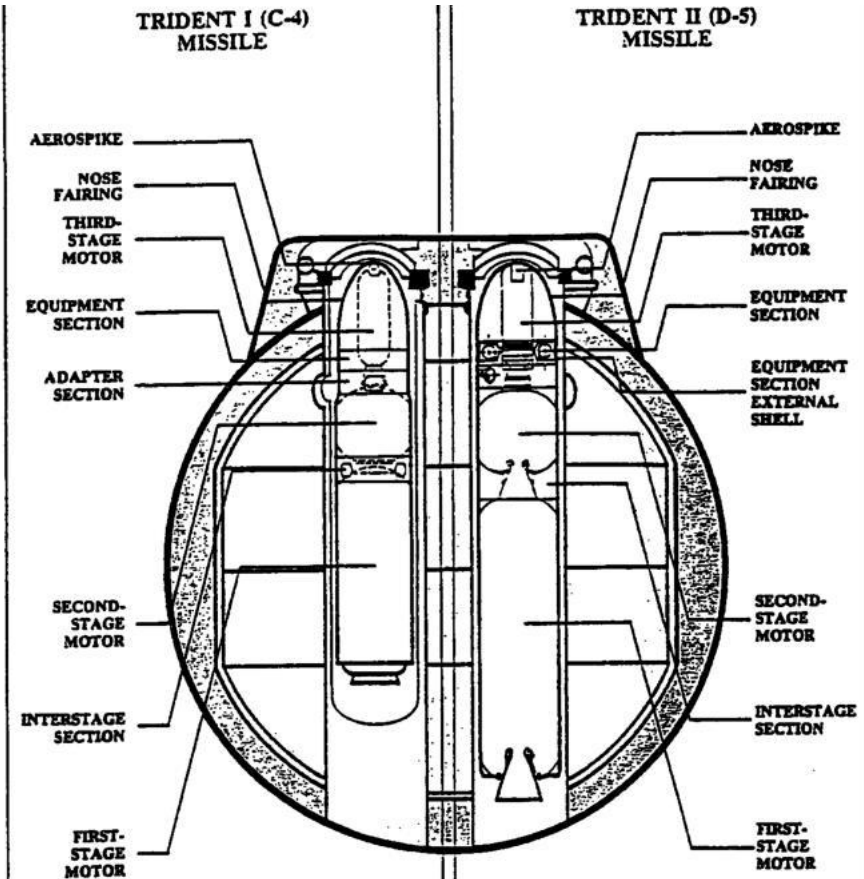
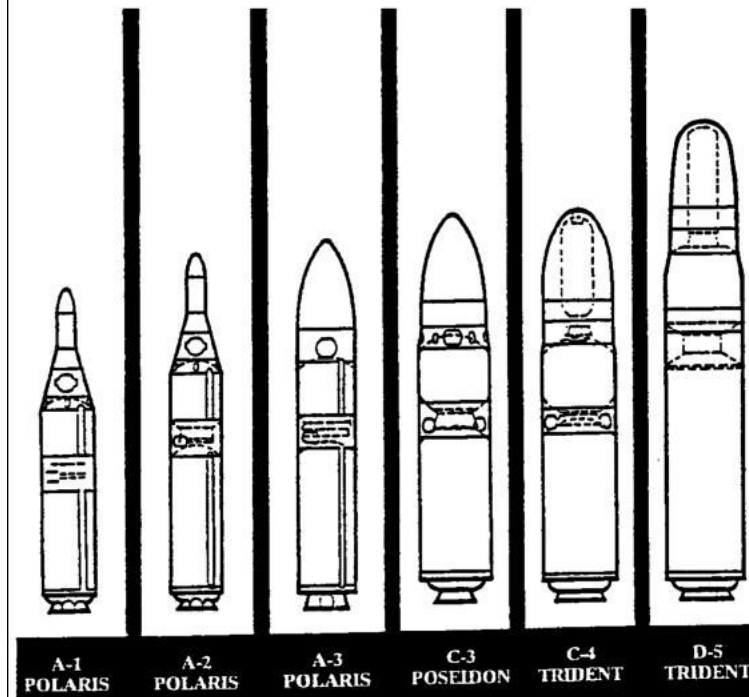
Figure 1.10.3.2 Nerve agent medical countermeasures available to the UK Armed Forces. Left: the Combopen[®] autoinjector, which contains atropine, avizafone and P2S for intramuscular injection (centre). Right: the nerve agent pretreatment set (NAPS), which contains pyridostigmine.

Schrader, G. "The Development of New Insecticides and Chemical Warfare Agents", BIOS (British Intelligence Objectives Sub-Committee) Final Report No. 714, Item No. 8 (1947).

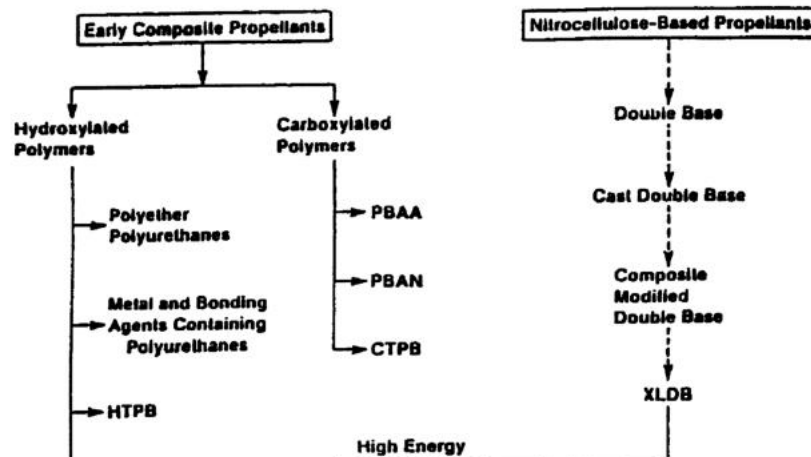


Dr. Gerhard Schrader (1903-1990), the discoverer of Nazi Tabun and Sarin nerve gases, spent 14 days in hospital in November 1936, as a result of nerve gas exposure.

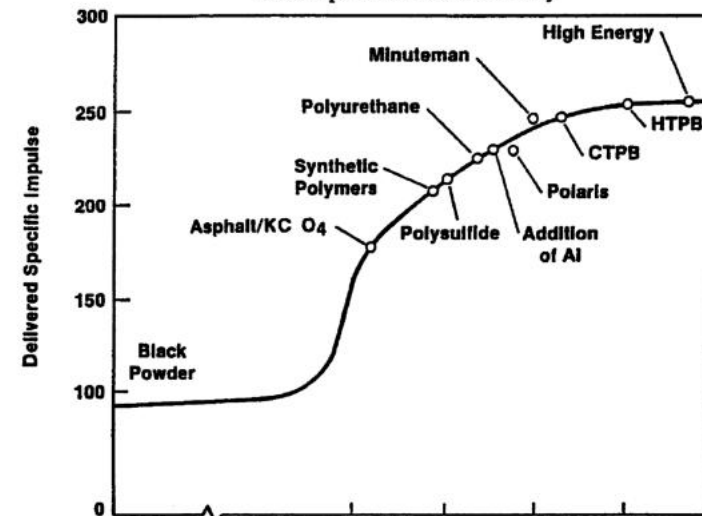
ADA406104



Development Progress



Solid Propellant Performance History





Above: declassified data on the discovery and performance of the latest high-energy cross-linked solid propellants for ICBMs and SLBMs, like Trident. Thus, North Korean nuclear proliferation efforts like its SLBM program can proceed faster and more cheaply than expected from naive analogies to earlier nuclear powers, since the modern dictatorship can simply bypass a lot of the research "dead ends" by using the end results of the research of other nations to focus its own research on tried-and-tested technology that works.

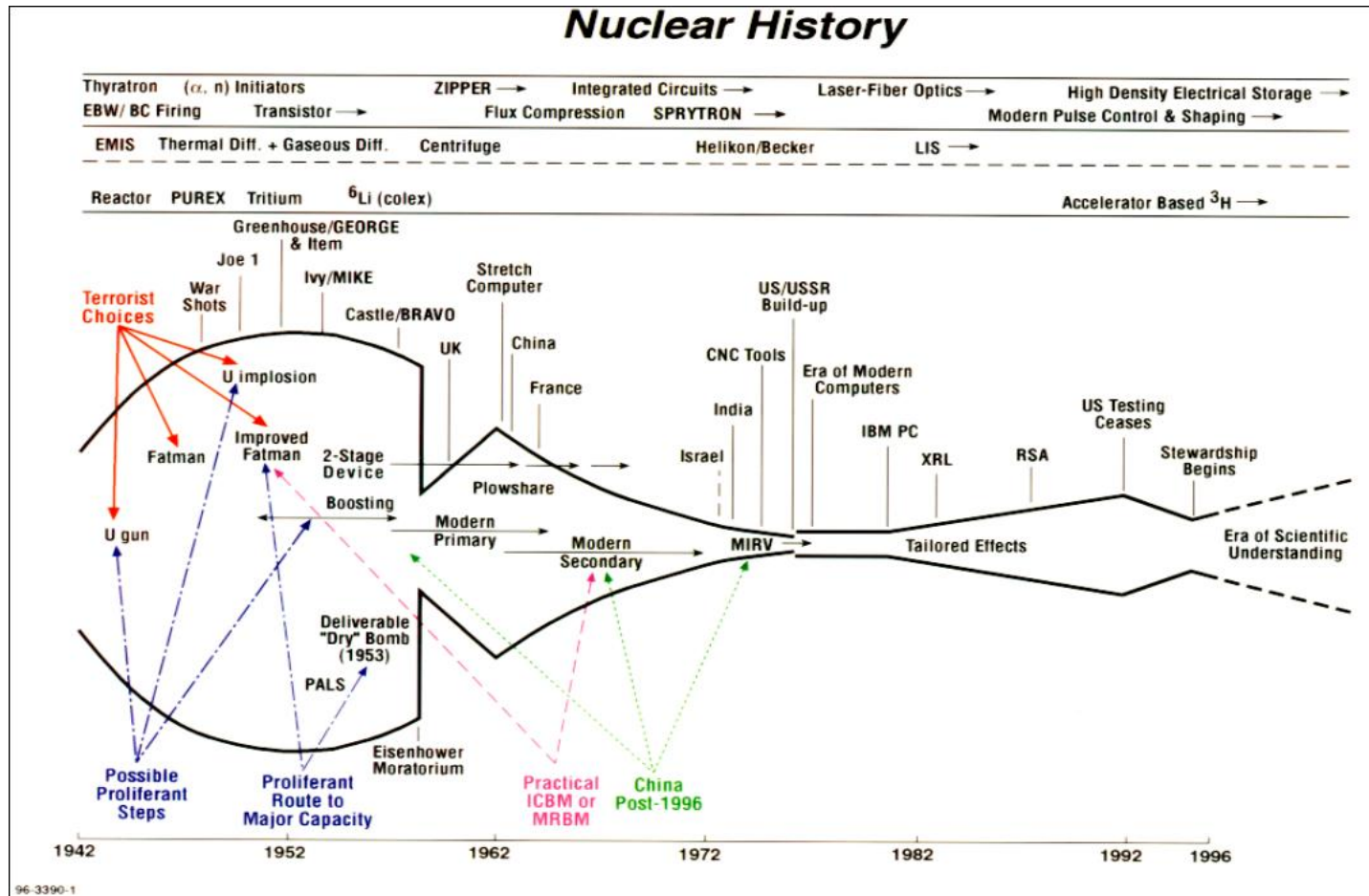


Figure 5.0-1. Nuclear History

II-5-5

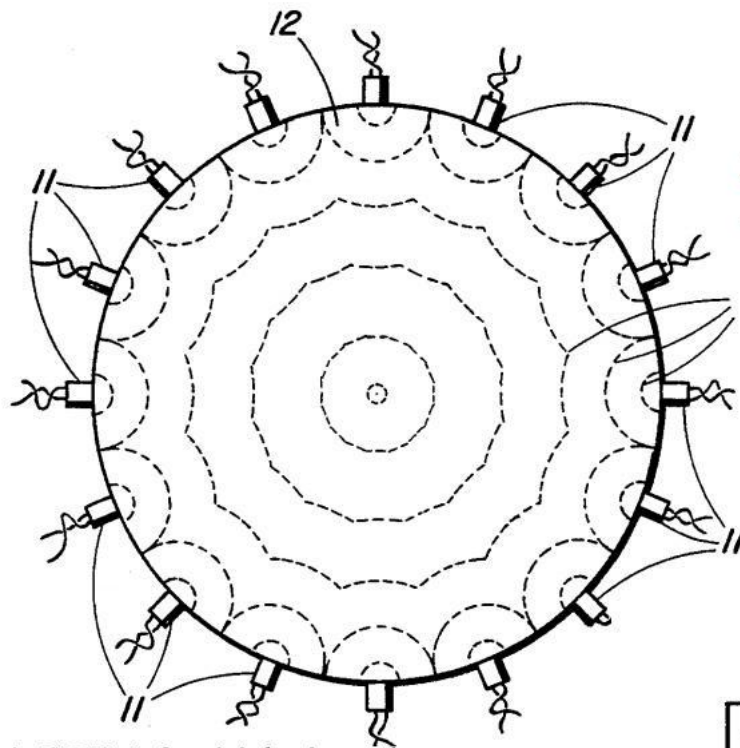
Militarily Critical Technologies List (MCTL)

Part II: Weapons of Mass Destruction Technologies (1998 edition)

Department of Defense

According to the diagram above, *modern* primary and secondary stages for nuclear warheads were developed back in the 1960s. So just how much safe-guarding secrecy is continuing over effective non-lens type implosion systems relevant for compressing fissile material and thereby (with an nuclear initiator and high-current switched capacitor bank X-unit) causing nuclear explosions?

U.S. military physicist Bernard E. Drimmer (who worked in the Explosives Division in the U.S. Naval Ordnance Laboratory, and died on 3 December 2008), an expert with numerous patents for shaped explosives, anti-tank mines, etc., has an unclassified US patent number 5450794, filed on 29 November 1963 and granted on 19 September 1995, for an implosion system relevant to compact nuclear shells, although the patent makes no mention of nuclear applications, but is passed off as merely a more efficient way of detonating conventional explosions. If you simultaneously detonate the outer edges of an explosive, the implosion wave burns inwards, rebounds in the centre - especially if there is a dense metal core there like uranium - and then rebounds outward. All of the explosive material is therefore engulfed twice by the main shock wave, once during the implosion and then again during the outward rebound. This ensures more effective burning and energy transfer to the shock wave than occurs otherwise in a non-nuclear bomb (from Newton's 3rd law, when you detonate the surface of an explosive, half the force or pressure times area goes inward and the other half goes outward, so if you are outside of a detonated implosion system with a non-fissile core, you first experience a direct shock wave, followed by the rebounded implosion wave, but the latter is much stronger than the former, because it picks up more energy from its two transits through the fully burned and hot detonation product gases):

United States Patent [19][11] **Patent Number:** **5,450,794****Drimmer**[45] **Date of Patent:** **Sep. 19, 1995**

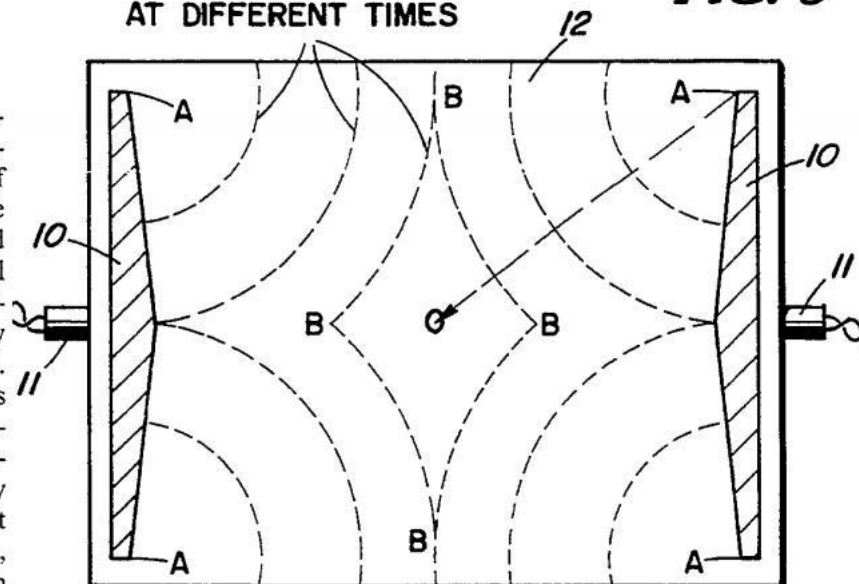
***Spherical implosion without
shaped special shaped lenses***

DETONATION WAVES
AT DIFFERENT TIMES

***"Linear implosion" system used
first in two 1955 nuclear tests***

FIG. 3

DETONATION WAVES
AT DIFFERENT TIMES



in FIGS. 2, 3 and 4 the detonation waves are propagated inwardly by the simultaneous initiation of detonators 11 on the charge surfaces. Due to the symmetry of the cylindrical charge in FIG. 3, inert barriers 10 are required to cause the shock waves to converge toward point 0. Otherwise, divergent shock waves would travel through the charge in opposite directions with the effect of adding only a negligible amount of shock energy to the reaction than is present in an ordinary explosion. In FIG. 3 the distance between the axial pairs of points A should be approximately equal to the diameter between the radial pairs of points A. Substantially simultaneous initiation of the two detonators may be readily and cheaply accomplished by a number of different schemes, permitting points A to ignite simultaneously, causing the detonation waves to converge as shown

Notice the shaping of the "inert barriers", or steel discs, which are thicker in the middle (pointing towards the core) in Figure 3 (showing the linear implosion system).

Linear implosion of this sort was first used successfully in the first successful Lawrence Livermore National Laboratory nuclear weapon, Teapot-Tesla (7 kilotons, detonated in Nevada on 1 March 1955) soon followed by an even smaller linear implosion weapon, Teapot-Post (2 kilotons, detonated in Nevada on 9 April 1955).

Linear implosion does not produce as much implosion pressure as a spherical implosion system of the same mass, but it does have the advantages of (a) requiring only two simultaneous detonators (reducing the complexity of the weapon design and allowing a smaller capacitor bank in the firing system, the X-unit) and (b) being a compact cylinder in shape, it fits into small nuclear bombs and shells. For low yield weapons designed for battlefield use where the yield is deliberately not-maximised in order to avoid collateral damage to civilians due to fallout, the lower fission efficiency, due to the smaller core compression in linear implosion, is simply not a problem.

So from the nuclear proliferation perspective, having possibly obtained a design for a compact 7 kiloton nuclear warhead implosion system from a published U.S. government patent, and having already test fired an ICBM and maybe a prototype SLBM, North Korea next **needs to develop a neat system to accurately eject the warheads from their missile bus. But is that a years-long technical challenge, or a problem long ago solved by the publication of the clever idea to us a coiled spring to give gyroscopic stability to the warheads while ejecting them, in the US patent 4,067,308 by three U.S. government military scientists hailing from the Sandia National Laboratories which design warheads systems made at the nuclear weapons factory in Albuquerque, New Mexico (again the patent does not mention nuclear weapons but the diagrams and the applications speak for themselves):**

United States Patent [19]

[11]

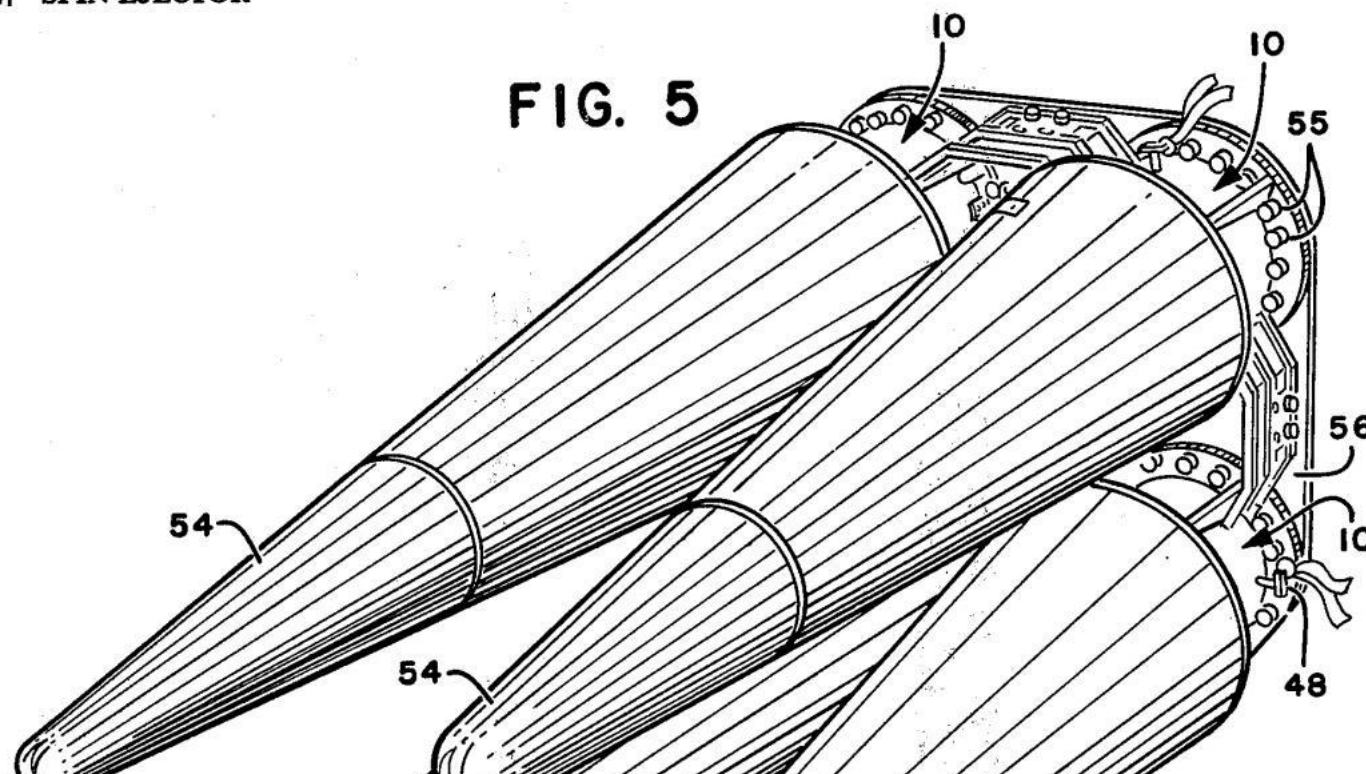
4,067,308

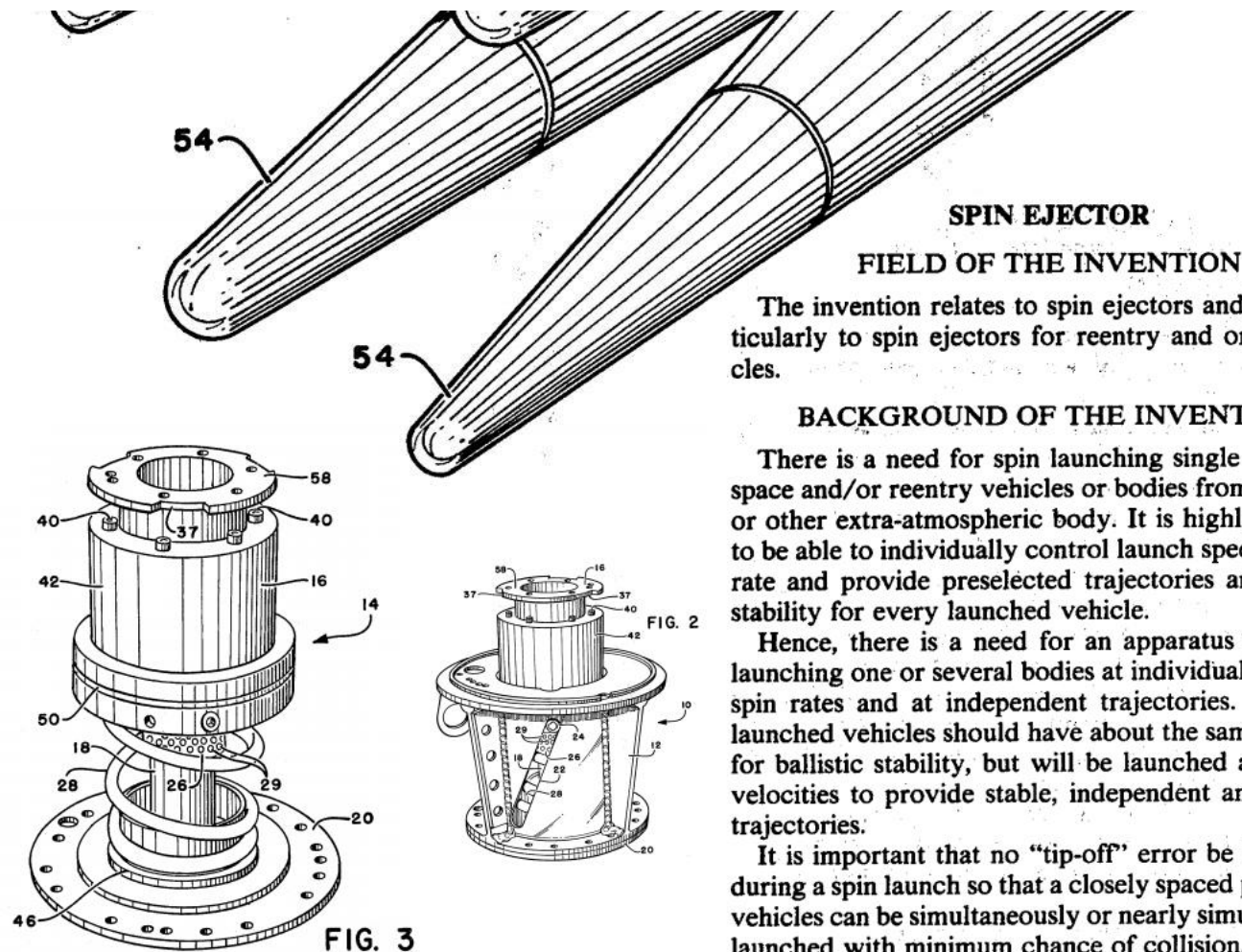
Andersen et al.

[45]


Jan. 10, 1978

[54] **SPIN EJECTOR**





The point we are making is that the North Korean nuclear threat is not necessarily as small as certain American politicians have claimed, who frequently and falsely assert that it will by necessity of technological barriers take many years before North Korea will be able to eject one of its proof-tested nuclear weapons from one of its proof-tested long range missile systems. That assertion is akin to the vague and misleading guesswork claims made by certain anti-war elements in America before 7 December 1941, that Japan could not launch a surprise attack on the Pacific fleet in Pearl Harbor, because it would take years to develop innovative air-dropped torpedoes that could cope with the shallow water. In reality, as Herman Kahn pointed out in *On Thermonuclear War*, the worst wars of history occurred when liberal opinion duped itself and many others into believing that such wars were history, using spurious technical claims and shutting down discussions of the errors of those claims. Historically, such people have proved to produce the culture of delusion that leads to policies maximising terrorism, surprise attacks, and mortality. The first step in getting effective civil defense in place to deter or mitigate terrorism is a realistic appraisal of the facts, not a delusion that official secrecy exists and will keep us safe. The first Russian nuclear test of 1949 came as a surprise to many in officialdom who believed that stamping "secret" on the facts would protect the free world. They were wrong. Secrecy is not only the instrument of totalitarian dictatorships, it proved that the totalitarian dictatorships actually had access to the free world's secrets, due to spying. So secrecy is no real defense. **Only widespread realistic understanding of the facts can reduce terrorism by honest civil defense.**

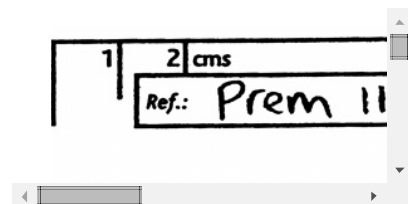
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CONVENTIONAL WARS HAVE KILLED TENS OF MILLIONS OF PEOPLE, NUCLEAR WEAPONS CAN RAPIDLY DETER THIS REAL THREAT TO PEACE WITH MINIMAL CASUALTIES. 'During the critical period 8-15 February [1968], the U.S. command realized [that conventional] bombing was not sufficiently effective. ... The air campaign dropped over 110,000 tons of bombs and napalm on the area around Khe Sanh during the 77-day siege ... the most heavily bombed target in the history of conventional warfare.' – W. C. Yengst, S. J. Lukasik, and M. A. Jensen, *Nuclear Weapons that went to War*, SAID report DSWA-TR-97-25, September 1998 (quoted in the 2015 book by the secret *Capabilities of Nuclear Weapons* editor, Dr Harold L. Brode, *Nuclear Weapons in the Cold War*, page 287). [British Nuclear Test Civil Defence Research](#)



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CHANGE 1

Field Manual No 101-31-1

NUCLEAR WEAPONS EMPLOYMENT DOCTRINE AND PROCEDURES

Radius of vulnerability (emergency risk criterion: 5% combat ineffective)

Figure 54. Radii of Vulnerability.

CATEGORY	PERSONNEL (LL) IN— (Based on Governing Effect)				
	Open	Open Foxholes	APCs	Tanks	Earth Shelter
Radii listed are distances at which a 5 percent incidence of effect occurs. HOB used is 60W ^{1/3} meters.					
Yield (KT)					
(Distances are in meters)					
0.1	700	600	600	500	300
1	1200	900	900	800	500
10	3200	1300	1300	1250	900
20	4000	1500	1450	1400	1000
100	8000	1900	1800	1800	1400
200	12000	2000	1900	1900	1500
300	14000	2100	1950	1950	1600

**Protective factor = ratio of
area of effect in the open,
area of effect for shelter**

**Example: for 300 kt, the protective
factor of open foxholes is equal to
(14,000)²/(2,100)² = 44.**

Open	Open Foxholes	APCs	Tanks	Earth Shelter
1	1.36	1.36	1.96	5.44
1	1.78	1.78	2.25	5.76
1	6.06	6.06	6.55	12.6
1	7.11	7.61	8.16	16.0
1	17.7	19.8	19.8	32.7
1	36.0	39.9	39.9	64.0
1	44.4	51.5	51.5	76.6

Calculation of the injury-averting protective factors by simple open foxholes and earth shelter function of weapon yield. Most countermeasures are relatively ineffective against tactical nuclear weapons (due to the predominating neutron radiation effect at 0.1 kt yield), but are extremely effective against strategic nuclear weapons with yields of 100, 200 and 300 kt (protective factors of 44 to 76.6).

The definition of protective factor used here is the factor by which casualties numbers are reduced.

Richard P. Feynman, 'This Unscientific Age', in *The Meaning of It All*, Penguin Books, London, 1998, pages 106-9:

'Now, I say if a man is absolutely honest and wants to protect the populace from the effects of radioactivity, which is what our scientific friends often say they are trying to do, then he should work on the biggest number, not on the smallest number, and he should try to point out that the [natural cosmic] radioactivity which is absorbed by living in the city of Denver is so much more serious [than the smaller doses from nuclear explosions] ... that all the people of Denver ought to move to lower altitudes.'

"If a man reads or hears a criticism of anything in which he has an interest, watch ... if he shows concern with any question except 'is it true?' he thereby reveals that his own attitude is unscientific. Likewise if ... he judges an idea not on its merits but with reference to the author of it; if he criticizes it as 'heresy'; if he argues that authority must be right because it is authority ... The path of truth is paved with critical doubt, and lighted by the spirit of objective enquiry... the majority of people have resented what seems in retrospect to have been purely matter of fact ... nothing has aided the persistence of falsehood, and the evils resulting from it, more than the unwillingness of good people to admit the truth ... the tendency continues to be shocked by natural comment, and to hold certain things

too 'sacred' to think about. ... How rarely does one meet anyone whose first reaction to anything is to ask: 'is it true?' Yet, unless that is a man's natural reaction, it shows that truth is not uppermost in his mind, and unless it is, true progress is unlikely."

- Sir Basil Henry Liddell Hart, *Why Don't We Learn from History?*, PEN Books, 1944; revised edition, Allen and Unwin, 1972.

Civil defense countermeasures, to be taken seriously by the population, require the publication of solid facts with the scientific evidence to support those facts against political propaganda to the contrary. Secrecy over the effects of nuclear weapons tests does not hinder plutonium and missile production by rogue states, but it does hinder civil defense countermeasures, by permitting lying political propaganda to go unopposed (see linked post, here).

Terrorists successfully prey on the vulnerable. The political spreading of lies concerning threats and the alleged 'impossibility' of all countermeasures, terrorizing the population in order to 'justify' supposedly pro-peace disarmament policies in the 1920s-1930s, resulted in the secret rearmament of fascist states which were terrorizing the Jews and others, eventually leading to World War II.

Political exaggerations about nuclear weapons effects today:

(1) encourage terrorist states and other groups to secretly invest in such weapons to use either for political intimidation or for future use against countries which have no countermeasures, and

(2) falsely dismiss, in the eyes of the media and the public, cheap relatively effective countermeasures like civil defense and ABM.

Therefore, doom-mongering media lies *make us vulnerable to the proliferation threat* today in two ways, just as they led to both world wars:

(1) Exaggerations of offensive technology and a down-playing of simple countermeasures such as trenches, encouraged belligerent states to start World War I in the false belief that modern technology implied overwhelming firepower which would terminate the war quickly on the basis of offensive preparedness: if the facts about simple trench countermeasures against shelling and machine guns during the American Civil War had been properly understood, it would have been recognised by Germany that a long war based on munitions production and logistics would be necessary, and war would have been seen to be likely to lead to German defeat against countries with larger overseas allies and colonies that could supply munitions and the other resources required to win a long war.

(2) Exaggerations of aerial bombardment technology after World War I led to disarmament 'supported by' false claims that it was impossible to have any defense against a perceived threat of instant annihilation from thousands of aircraft carrying gas and incendiary bombs, encouraging fascists to secretly rearm in order to successfully take advantage of the fear and vulnerability caused by this lying political disarmament propaganda.

Contrived dismissal of civil defense by Marxist "Cambridge Scientists Anti-War Group" bigots: (a) appeased war-mongering enemies, and (b) maximised war mortality rates. Idealism kills. Super effective, fully proof-tested, cheap civil defense makes nuclear deterrence credible to stop conventional war devastation by avoiding collateral damage, tit-for-tat retaliation and escalation.

Historically, it has been proved that having weapons is not enough to guarantee a reasonable measure of safety from terrorism and rogue states; countermeasures are also needed, both to make any deterrent credible and to negate or at least mitigate the effects of a terrorist attack. Some people who wear seatbelts die in car crashes; some people who are taken to hospital in ambulances, even in peace-time, die. Sometimes, lifebelts and lifeboats cannot save lives at sea. This lack of a 100% success rate in saving lives doesn't disprove the value of everyday precautions or of hospitals and medicine. Hospitals don't lull motorists into a false sense of security, causing them to drive faster and cause more accidents. Like-minded 'arguments' against ABM and civil defense are similarly vacuous.

'As long as the threat from Iran persists, we will go forward with a missile system that is cost-effective and proven. If the Iranian threat is eliminated, we will have a stronger basis for security, and the driving force for missile-defense construction in Europe will be removed.'

- President Obama, Prague Castle, Czech Republic, 4 April 2009.

Before 9/11, Caspar Weinberger was quizzed by skeptical critics on the BBC News program *Talking Point*, Friday, May 4, 2001: Caspar Weinberger quizzed on new US Star Wars ABM plans:

‘The [ABM] treaty was in 1972 ... The theory ... supporting the ABM treaty [which prohibits ABM, thus making nations vulnerable to terrorism] ... that it will prevent an arms race ... is perfect nonsense because we have had an arms race all the time we have had the ABM treaty, and we have seen the greatest increase in proliferation of nuclear weapons that we have ever had. ... So the ABM treaty preventing an arms race is total nonsense. ...

‘You have to understand that without any defences whatever you are very vulnerable. **It is like saying we don't like chemical warfare - we don't like gas attacks - so we are going to give up and promise not to have any defences ever against them and that of course would mean then we are perfectly safe. ...**

‘The Patriot was not a failure in the Gulf War - the Patriot was one of the things which defeated the Scud and in effect helped us win the Gulf War. One or two of the shots went astray but that is true of every weapon system that has ever been invented. ...

‘The fact that a missile defence system wouldn't necessarily block a suitcase bomb is certainly not an argument for not proceeding with a missile defence when a missile that hits can wipe out hundreds of thousands of lives in a second. ...

‘The **curious thing about it is that missile defence is not an offensive weapon system - missile defence cannot kill anybody. Missile defence can help preserve and protect your people and our allies, and the idea that you are somehow endangering people by having a defence strikes me almost as absurd as saying you endanger people by having a gas mask in a gas attack. ...**

‘President Bush said that we were going ahead with the defensive system but we would make sure that nobody felt we had offensive intentions because we would accompany it by a unilateral reduction of our nuclear arsenal. It seems to me to be a rather clear statement that proceeding with the missile defence system would mean fewer arms of this kind.

‘You have had your arms race all the time that the ABM treaty was in effect and now you have an enormous accumulation and increase of nuclear weapons and that was your arms race promoted by the ABM treaty. Now if you abolish the ABM treaty you are not going to get another arms race - *you have got the arms already there* - and if you accompany the missile defence construction with the unilateral reduction of our own nuclear arsenal then it seems to me you are finally getting some kind of inducement to reduce these weapons.’

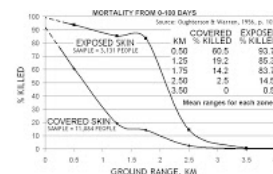
Before the ABM system is in place, and afterwards if ABM fails to be 100% effective in an attack, or is bypassed by terrorists using a bomb in a suitcase or in a ship, civil defense is required and can be effective at saving lives:

‘Paradoxically, the more damaging the effect, that is the farther out its lethality stretches, the more can be done about it, because in the last fall of its power it covers vast areas, where small mitigations will save very large numbers of people.’

- Peter Laurie, *Beneath the City Streets: A Private Inquiry into the Nuclear Preoccupations of Government*, Penguin, 1974.

‘The purpose of a book is to save people [the] time and effort of digging things out for themselves. ... we have tried to leave the reader with something tangible – what a certain number of calories, roentgens, etc., means in terms of an effect on the human being. ... we must think of the people we are writing for.’

– Dr Samuel Glasstone, DSc, letter dated 1 February 1957 to Colonel Dent L. Lay, Chief, Weapons Effects Division, U.S. Armed Forces Special Weapons Project, Washington, D.C., pages 2 and 4, concerning the preparation of *The Effects of Nuclear Weapons*.



Glasstone and Dolan stated in *The Effects of Nuclear Weapons* (1977), Table 12.17 on page 546, that the median distance in Hiroshima

for survival after 20 days was 0.12 miles for people in concrete buildings and 1.3 miles for people standing outdoors. Therefore the median distances for survival in modern city buildings and in the open differed by a factor of 11 for Hiroshima; the difference in areas was thus a factor of 11^2 or about 120. Hence, taking cover in modern city buildings reduces the casualty rates and the risks of being killed by a factor of 120 for Hiroshima conditions, contrary to popular media presented political propaganda that civil defence is hopeless. This would reduce 120,000 casualties to 1,000 casualties.

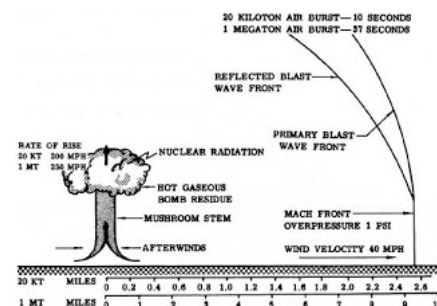
From Dr Glasstone's *Effects of Nuclear Weapons* (1962/64 ed., page 631): 'At distances between 0.3 and 0.4 mile from ground zero in Hiroshima the average survival rate, for at least 20 days after the nuclear explosion, was less than 20 percent. Yet in two reinforced concrete office buildings, at these distances, almost 90 percent of the nearly 800 occupants survived more than 20 days, although some died later of radiation injury. Furthermore, of approximately 3,000 school students who were in the open and unshielded within a mile of ground zero at Hiroshima, about 90 percent were dead or missing after the explosion. But of nearly 5,000 students in the same zone who were shielded in one way or another, only 26 percent were fatalities. ... survival in Hiroshima was possible in buildings at such distances that the overpressure in the open was 15 to 20 pounds per square inch. ... it is evident ... that the area over which protection could be effective in saving lives is roughly eight to ten times as great as that in which the chances of survival are small.'

Lord Mayhew, House of Lords debate on Civil Defence (General Local Authority Functions) Regulations, Hansard, vol. 444, cc. 523-49, 1 November 1983: '... if there had been effective civil defence at Hiroshima probably thousands of lives would have been saved and much human suffering would have been avoided. There is no question about it. ...'

Since the 1977 update by Glasstone and Dolan, extensive new updates to EM-1 for a further revised edition of *The Effects of Nuclear Weapons* have not actually been published with unlimited public distribution, due to President Carter's 1979 executive order which transferred responsibility for civil defense from the jurisdiction of the U.S. Department of Defense's Defense Civil Preparedness Agency to the new agency (which is not an Agency of the U.S. Department of Defense, and is not concerned with the analysis of nuclear weapons test effects data), the Federal Emergency Management Agency. However, the February 1997 U.S. Department of Defense's Defense Special Weapons Agency 0602715H RDT&E Budget Item Justification Sheet (R-2 Exhibit) states that a revision of Glasstone and Dolan's unclassified *Effects of Nuclear Weapons* was budgeted for 1997-9:

"FY 1997 Plans: ... Provide text to update Glasstone's book, *The Effects of Nuclear Weapons*, the standard reference for nuclear weapons effects. ... Update the unclassified textbook entitled, *The Effects of Nuclear Weapons*. ... Continue revision of Glasstone's book, *The Effects of Nuclear Weapons*, the standard reference for nuclear weapons effects. ... FY1999 Plans ... Disseminate updated *The Effects of Nuclear Weapons*."

The new publications are either classified or unclassified with limited distribution restrictions (e.g., Bridgman's *Introduction to the Physics of Nuclear Weapons Effects*, which includes several chapters on nuclear weapons design to enable initial radiation outputs to be calculated precisely) which prevents up-to-date basic nuclear effects information to justify civil defense against the latest nuclear threats from being widely disseminated; the books are printed for use only by government agencies. The problem with this approach is that widespread public understanding of the best information for civil defense countermeasures is prevented.



'The evidence from Hiroshima indicates that blast survivors, both injured and uninjured, in buildings later consumed by fire [caused by the blast

overturning charcoal braziers used for breakfast in inflammable wooden houses filled with easily ignitable bamboo furnishings and paper screens] were generally able to move to safe areas following the explosion. Of 130 major buildings studied by the U.S. Strategic Bombing Survey ... 107 were ultimately burned out ... Of those suffering fire, about 20 percent were burning after the first half hour. The remainder were consumed by fire spread, some as late as 15 hours after the blast. This situation is not unlike the one our computer-based fire spread model described for Detroit.’

- Defense Civil Preparedness Agency, U.S. Department of Defense, *DCPA Attack Environment Manual, Chapter 3: What the Planner Needs to Know About Fire Ignition and Spread*, report CPG 2-1A3, June 1973, Panel 27.

The Effects of the Atomic Bomb on Hiroshima, Japan, US Strategic Bombing Survey, Pacific Theatre, report 92, volume 2 (May 1947, secret):

Volume one, page 14:

“... the city lacked buildings with fire-protective features such as automatic fire doors and automatic sprinkler systems”, and pages 26-28 state the heat flash in Hiroshima was only:

“... capable of starting primary fires in exposed, easily combustible materials such as dark cloth, thin paper, or dry rotted wood exposed to direct radiation at distances usually within 4,000 feet of the point of detonation (AZ).”

Volume two examines the firestorm and the ignition of clothing by the thermal radiation flash in Hiroshima:

Page 24:

“Scores of persons throughout all sections of the city were questioned concerning the ignition of clothing by the flash from the bomb. ... Ten school boys were located during the study who had been in school yards about 6,200 feet east and 7,000 feet west, respectively, from AZ [air zero]. These boys had flash burns on the portions of their faces which had been directly exposed to rays of the bomb. The boys’ stories were consistent to the effect that their clothing, apparently of cotton materials, ‘smoked,’ but did not burst into flame. ... a boy’s coat ... started to smoulder from heat rays at 3,800 feet from AZ.” [Contrast this to the obfuscation and vagueness in Glasstone, *The Effects of Nuclear Weapons*!]

Page 88:

“Ignition of the City. ... Only directly exposed surfaces were flash burned. Measured from GZ, flash burns on wood poles were observed at 13,000 feet, granite was roughened or spalled by heat at 1,300 feet, and vitreous tiles on roofs were blistered at 4,000 feet. ... six persons who had been in reinforced-concrete buildings within 3,200 feet of air zero stated that black cotton blackout curtains were ignited by radiant heat ... dark clothing was scorched and, in some cases, reported to have burst into flame from flash heat [*although as the 1946 unclassified USSBS report admits, most immediately beat the flames out with their hands without sustaining injury, because the clothing was not drenched in gasoline, unlike peacetime gasoline tanker road accident victims*]

“... but a large proportion of over 1,000 persons questioned was in agreement that a great majority of the original fires was started by debris falling on kitchen charcoal fires, by industrial process fires, or by electric short circuits. Hundreds of fires were reported to have started in the centre of the city within 10 minutes after the explosion. Of the total number of buildings investigated [135 buildings are listed] 107 caught fire, and in 69 instances, the probable cause of initial ignition of the buildings or their contents was as follows: (1) 8 by direct radiated heat from the bomb (primary fire), (2) 8 by secondary sources, and (3) 53 by fire spread from exposed [wooden] buildings.”

‘It is true that the Soviets have tested nuclear weapons of a yield higher than that which we thought necessary, but the 100-megaton bomb of which they spoke two years ago does not and will not change the balance of strategic power. The United States has chosen, deliberately, to concentrate on more mobile and more efficient weapons, with lower but entirely sufficient yield ...’ - President John F. Kennedy in his television broadcast to the American public, 26 July 1963.

‘During World War II many large cities in England, Germany, and Japan were subjected to terrific attacks by high-explosive and incendiary bombs.

Yet, when proper steps had been taken for the protection of the civilian population and for the restoration of services after the bombing, there was little, if any, evidence of panic. It is the purpose of this book to state the facts concerning the atomic bomb, and to make an objective, scientific analysis of these facts. It is hoped that as a result, although it may not be feasible completely to allay fear, it will at least be possible to avoid panic.'

– **Dr George Gamow (the big bang cosmologist)**, Dr **Samuel Glasstone**, DSc (Executive Editor of the book), and **Professor Joseph O. Hirschfelder**, *The Effects of Atomic Weapons*, Chapter 1, p. 1, Paragraph 1.3, U.S. Department of Defense, September 1950.

'The consequences of a multiweapon nuclear attack would certainly be grave ... Nevertheless, recovery should be possible if plans exist and are carried out to restore social order and to mitigate the economic disruption.'

– **Philip J. Dolan**, editor of *Nuclear Weapons Employment* FM 101-31 (1963), *Capabilities of Nuclear Weapons* DNA-EM-1 (1972), and *The Effects of Nuclear Weapons* (1977), Stanford Research Institute, Appendix A of the **U.S. National Council on Radiological protection (NCRP) symposium *The Control of Exposure to the Public of Ionising Radiation in the Event of Accident or Attack*, 1981.**

'Suppose the bomb dropped on Hiroshima had been 1,000 times as powerful ... It could not have killed 1,000 times as many people, but at most the entire population of Hiroshima ... [regarding the hype about various nuclear "overkill" exaggerations] there is enough water in the oceans to drown everyone ten times.'

– **Professor Brian Martin, PhD (physics)**, 'The global health effects of nuclear war', *Current Affairs Bulletin*, Vol. 59, No. 7, December 1982, pp. 14-26.

In 1996, half a century after the nuclear detonations, data on cancers from the Hiroshima and Nagasaki survivors was published by D. A. Pierce et al. of the Radiation Effects Research Foundation, RERF (*Radiation Research* vol. 146 pp. 1-27; *Science* vol. 272, pp. 632-3) for 86,572 survivors, of whom 60% had received bomb doses of over 5 mSv (or 500 millirem in old units) suffering 4,741 cancers of which only 420 were due to radiation, consisting of 85 leukemias and 335 solid cancers.

'Today we have a population of 2,383 [radium dial painter] cases for whom we have reliable body content measurements. . . . All 64 bone sarcoma [cancer] cases occurred in the 264 cases with more than 10 Gy [1,000 rads], while no sarcomas appeared in the 2,119 radium cases with less than 10 Gy.'

– **Dr Robert Rowland, Director of the Center for Human Radiobiology**, *Bone Sarcoma in Humans Induced by Radium: A Threshold Response?*, *Proceedings of the 27th Annual Meeting, European Society for Radiation Biology, Radioprotection colloquies*, Vol. 32CI (1997), pp. 331-8.

Zbigniew Jaworowski, 'Radiation Risk and Ethics: Health Hazards, Prevention Costs, and Radiophobia', *Physics Today*, April 2000, pp. 89-90:

'... it is important to note that, given the effects of a few seconds of irradiation at Hiroshima and Nagasaki in 1945, a threshold near 200 mSv may be expected for leukemia and some solid tumors. [Sources: UNSCEAR, *Sources and Effects of Ionizing Radiation*, New York, 1994; W. F. Heidenreich, et al., *Radiat. Environ. Biophys.*, vol. 36 (1999), p. 205; and B. L. Cohen, *Radiat. Res.*, vol. 149 (1998), p. 525.] For a protracted lifetime natural exposure, a threshold may be set at a level of several thousand millisieverts for malignancies, of 10 grays for radium-226 in bones, and probably about 1.5-2.0 Gy for lung cancer after x-ray and gamma irradiation. [Sources: G. Jaikrishan, et al., *Radiation Research*, vol. 152 (1999), p. S149 (for natural exposure); R. D. Evans, *Health Physics*, vol. 27 (1974), p. 497 (for radium-226); H. H. Rossi and M. Zaider, *Radiat. Environ. Biophys.*, vol. 36 (1997), p. 85 (for radiogenic lung cancer).] The hormetic effects, such as a decreased cancer incidence at low doses and increased longevity, may be used as a guide for estimating practical thresholds and for setting standards. ...

'Though about a hundred of the million daily spontaneous DNA damages per cell remain unrepaired or misrepaired, apoptosis, differentiation, necrosis, cell cycle regulation, intercellular interactions, and the immune system remove about 99% of the altered cells. [Source: R. D. Stewart, *Radiation Research*, vol. 152 (1999), p. 101.] ...

'[Due to the Chernobyl nuclear accident in 1986] as of 1998 (according to UNSCEAR), a total of 1,791 thyroid cancers in children had been registered. About 93% of the youngsters have a prospect of full recovery. [Source: C. R. Moir and R. L. Telander, *Seminars in Pediatric Surgery*,

vol. 3 (1994), p. 182.] ... The highest average thyroid doses in children (177 mGy) were accumulated in the Gomel region of Belarus. The highest incidence of thyroid cancer (17.9 cases per 100,000 children) occurred there in 1995, which means that the rate had increased by a factor of about 25 since 1987.

‘This rate increase was probably a result of improved screening [not radiation!]. Even then, the incidence rate for occult thyroid cancers was still a thousand times lower than it was for occult thyroid cancers in nonexposed populations (in the US, for example, the rate is 13,000 per 100,000 persons, and in Finland it is 35,600 per 100,000 persons). Thus, given the prospect of improved diagnostics, there is an enormous potential for detecting yet more [fictitious] "excess" thyroid cancers. In a study in the US that was performed during the period of active screening in 1974-79, it was determined that the incidence rate of malignant and other thyroid nodules was greater by 21-fold than it had been in the pre-1974 period. [Source: Z. Jaworowski, *21st Century Science and Technology*, vol. 11 (1998), issue 1, p. 14.]’

‘Professor **Edward Lewis** used data from four independent populations exposed to radiation to demonstrate that the incidence of leukemia was linearly related to the accumulated dose of radiation. ... Outspoken scientists, including Linus Pauling, used **Lewis**’s risk estimate to inform the public about the danger of nuclear fallout by estimating the number of leukemia deaths that would be caused by the test detonations. In May of 1957 **Lewis**’s analysis of the radiation-induced human leukemia data was published as a lead article in *Science* magazine. In June he presented it before the Joint Committee on Atomic Energy of the US Congress.’ – Abstract of thesis by Jennifer Caron, *Edward Lewis and Radioactive Fallout: the Impact of Caltech Biologists Over Nuclear Weapons Testing in the 1950s and 60s*, Caltech, January 2003.

Dr John F. Loutit of the Medical Research Council, Harwell, England, in 1962 wrote a book called *Irradiation of Mice and Men* (University of Chicago Press, Chicago and London), discrediting the pseudo-science from geneticist **Edward Lewis** on pages 61, and 78-79:

‘... Mole [R. H. Mole, *Brit. J. Radiol.*, v32, p497, 1959] gave different groups of mice an integrated total of 1,000 r of X-rays over a period of 4 weeks. But the dose-rate - and therefore the radiation-free time between fractions - was varied from 81 r/hour intermittently to 1.3 r/hour continuously. The incidence of leukemia varied from 40 per cent (within 15 months of the start of irradiation) in the first group to 5 per cent in the last compared with 2 per cent incidence in irradiated controls. ...

‘What **Lewis** did, and which I have not copied, was to include in his table another group - spontaneous incidence of leukemia (Brooklyn, N.Y.) - who are taken to have received only natural background radiation throughout life at the very low dose-rate of 0.1-0.2 rad per year: the best estimate is listed as 2×10^{-6} like the others in the table. But the value of 2×10^{-6} was not calculated from the data as for the other groups; it was merely adopted. By its adoption and multiplication with the average age in years of Brooklyners - 33.7 years and radiation dose per year of 0.1-0.2 rad - a mortality rate of 7 to 13 cases per million per year due to background radiation was deduced, or some 10-20 per cent of the observed rate of 65 cases per million per year. ...

‘All these points are very much against the basic hypothesis of **Lewis** of a linear relation of dose to leukemic effect irrespective of time. Unhappily it is not possible to claim for **Lewis**’s work as others have done, “It is now possible to calculate - within narrow limits - how many deaths from leukemia will result in any population from an increase in fall-out or other source of radiation” [Leading article in *Science*, vol. 125, p. 963, 1957]. This is just wishful journalese.

‘The burning questions to me are not what are the numbers of leukemia to be expected from atom bombs or radiotherapy, but what is to be expected from natural background Furthermore, to obtain estimates of these, I believe it is wrong to go to [1950s inaccurate, dose rate effect ignoring, data from] atom bombs, where the radiations are qualitatively different [i.e., including effects from neutrons] and, more important, the dose-rate outstandingly different.’

Samuel Glasstone and Philip J. Dolan, *The Effects of Nuclear Weapons*, 3rd ed., 1977, pp. 611-3:

‘From the earlier studies of radiation-induced mutations, made with fruitflies [by Nobel Laureate Hermann J. Muller and other geneticists who worked on plants, who falsely hyped their insect and plant data as valid for mammals like humans during the June 1957 U.S. Congressional Hearings on fallout effects], it appeared that the number (or frequency) of mutations in a given population ... is proportional to the total dose ... More recent experiments with mice, however, have shown that these conclusions need to be revised, at least for mammals. [*Mammals are biologically closer to humans, in respect to DNA repair mechanisms, than short-lived insects whose life cycles are too small to have forced the evolutionary development of advanced DNA repair mechanisms, unlike mammals that need to survive for decades before reproducing.*] When exposed to X-rays or

gamma rays, the mutation frequency in these animals has been found to be dependent on the exposure (or dose) rate ...

‘At an exposure rate of 0.009 roentgen per minute [0.54 R/hour], the total mutation frequency in female mice is indistinguishable from the spontaneous frequency. [Emphasis added.] There thus seems to be an exposure-rate threshold below which radiation-induced mutations are absent ... with adult female mice ... a delay of at least seven weeks between exposure to a substantial dose of radiation, either neutrons or gamma rays, and conception causes the mutation frequency in the offspring to drop almost to zero. ... **recovery** in the female members of the population would bring about a substantial reduction in the ‘load’ of mutations in subsequent generations.’

George Bernard Shaw cynically explains groupthink brainwashing bias:

‘We cannot help it because we are so constituted that we always believe finally what we wish to believe. The moment we want to believe something, we suddenly see all the arguments for it and become blind to the arguments against it. The moment we want to disbelieve anything we have previously believed, we suddenly discover not only that there is a mass of evidence against, but that this evidence was staring us in the face all the time.’

From the essay titled ‘What is Science?’ by Professor Richard P. Feynman, presented at the fifteenth annual meeting of the National Science Teachers Association, 1966 in New York City, and published in *The Physics Teacher*, vol. 7, issue 6, 1968, pp. 313-20:

‘... great religions are dissipated by following form without remembering the direct content of the teaching of the great leaders. In the same way, it is possible to follow form and call it science, but that is pseudo-science. In this way, we all suffer from the kind of tyranny we have today in the many institutions that have come under the influence of pseudoscientific advisers.

‘We have many studies in teaching, for example, in which people make observations, make lists, do statistics, and so on, but these do not thereby become established science, established knowledge. They are merely an imitative form of science analogous to the South Sea Islanders’ airfields - radio towers, etc., made out of wood. The islanders expect a great airplane to arrive. They even build wooden airplanes of the same shape as they see in the foreigners’ airfields around them, but strangely enough, their wood planes do not fly. The result of this pseudoscientific imitation is to produce experts, which many of you are. ... you teachers, who are really teaching children at the bottom of the heap, can maybe doubt the experts. As a matter of fact, I can also define science another way: Science is the belief in the ignorance of experts.’

Richard P. Feynman, ‘This Unscientific Age’, in *The Meaning of It All*, Penguin Books, London, 1998, pages 106-9:

‘Now, I say if a man is absolutely honest and wants to protect the populace from the effects of radioactivity, which is what our scientific friends often say they are trying to do, then he should work on the biggest number, not on the smallest number, and he should try to point out that the [natural cosmic] radioactivity which is absorbed by living in the city of Denver is so much more serious [than the smaller doses from nuclear explosions] ... that all the people of Denver ought to move to lower altitudes.’

Feynman is *not* making a point about low level radiation effects, but about the politics of ignoring the massive natural background radiation dose, while provoking hysteria over much smaller measured fallout pollution radiation doses. Why is the anti-nuclear lobby so concerned about banning nuclear energy - which is not possible even in principle since most of our nuclear radiation is from the sun and from supernova debris contaminating the Earth from the explosion that created the solar system circa 4,540 million years ago - when they could cause much bigger radiation dose reductions to the population by concentrating on the bigger radiation source, natural background radiation. It is possible to shield natural background radiation by the air, e.g. by moving the population of high altitude cities to lower altitudes where there is more air between the people and outer space, or banning the use of high-altitude jet aircraft. The anti-nuclear lobby, as Feynman stated back in the 1960s, didn’t crusade to reduce the bigger dose from background radiation. Instead they chose to argue against the *much smaller* doses from fallout pollution. Feynman’s argument is still today falsely interpreted as a political statement, when it is actually exposing pseudo-science and countering political propaganda. It is still ignored by the media. It has been pointed out by Senator Hickenlooper on page 1060 of the May-June 1957 U.S. Congressional Hearings before the Special Subcommittee on Radiation of the Joint Committee on Atomic Energy, *The Nature of Radioactive Fallout and Its Effects on Man*:

‘I presume all of us would earnestly hope that we never had to test atomic weapons ... but by the same token I presume that we want to save thousands of lives in this country every year and we could just abolish the manufacture of [road accident causing] automobiles ...’

Dihydrogen monoxide is a potentially very dangerous chemical containing hydrogen and oxygen which has caused numerous severe burns by scalding

and deaths by drowning, contributes to the greenhouse effect, accelerates corrosion and rusting of many metals, and contributes to the erosion of our natural landscape: 'Dihydrogen monoxide (DHMO) is colorless, odorless, tasteless, and kills uncounted thousands of people every year. Most of these deaths are caused by accidental inhalation of DHMO, but the dangers of dihydrogen monoxide do not end there. Prolonged exposure to its solid form causes severe tissue damage. Symptoms of DHMO ingestion can include excessive sweating and urination, and possibly a bloated feeling, nausea, vomiting and body electrolyte imbalance. For those who have become dependent, DHMO withdrawal means certain death.'

From the site for the petition against dihydrogen monoxide: **'Please sign this petition and help stop This Invisible Killer. Get the government to do something now. ... Contamination Is Reaching Epidemic Proportions! Quantities of dihydrogen monoxide have been found in almost every stream, lake, and reservoir in America today. But the pollution is global, and the contaminant has even been found in Antarctic ice. DHMO has caused millions of dollars of property damage in the Midwest, and recently California.'**

A recent example of the pseudoscientific radiation 'education' masquerading as science that Feynman (quoted above) objected to in the 1960s was published in 2009 in an article called 'The proportion of childhood leukaemia incidence in Great Britain that may be caused by natural background ionizing radiation' in *Leukemia*, vol. 23 (2009), pp. 770–776, which falsely asserts - in contradiction to the evidence that the no-threshold model is *contrary* to Hiroshima and Nagasaki data: 'Risk models based primarily on studies of the Japanese atomic bomb survivors imply that low-level exposure to ionizing radiation, including ubiquitous natural background radiation, also raises the risk of childhood leukaemia. Using two sets of recently published leukaemia risk models and estimates of natural background radiation red-bone-marrow doses received by children, about 20% of the cases of childhood leukaemia in Great Britain are predicted to be attributable to this source.' The authors of this pseudoscience which is the opposite of the facts are R. Wakeford (Dalton Nuclear Institute, University of Manchester, Manchester, UK), G. M. Kendall (Childhood Cancer Research Group, Oxford, UK), and M. P. Little (Department of Epidemiology and Public Health, Imperial College, London, UK). It is disgusting and sinful that the facts about childhood leukemia are being lied on so blatantly for non-scientific purposes, and it is to be hoped that these leukemia investigators will either correct their errors or alternatively be banned from using scientific literature to promote false dogma for deception until they mend the error of their ways and repent their sins in this matter.

Protein P53, discovered only in 1979, is encoded by gene TP53, which occurs on human chromosome 17. P53 also occurs in other mammals including mice, rats and dogs. P53 is one of the proteins which continually repairs breaks in DNA, which easily breaks at body temperature: the DNA in each cell of the human body suffers at least two single strand breaks every second, and one double strand (i.e. complete double helix) DNA break occurs at least once every 2 hours (5% of radiation-induced DNA breaks are double strand breaks, while 0.007% of spontaneous DNA breaks at body temperature are double strand breaks)! Cancer occurs when several breaks in DNA happen to occur by chance at nearly the same time, giving several loose strand ends at once, which repair proteins like P53 then repair incorrectly, causing a mutation which can be proliferated somatically. This cannot occur when only one break occurs, because only two loose ends are produced, and P53 will reattach them correctly. But if low-LET ionising radiation levels are increased to a certain extent, causing more single strand breaks, P53 works faster and is able deal with faster breaks as they occur, so that multiple broken strand ends do not arise. This prevents DNA strands being repaired incorrectly, and prevents cancer - a result of mutation caused by faults in DNA - from arising. Too much radiation of course overloads the P53 repair mechanism, and then it cannot repair breaks as they occur, so multiple breaks begin to appear and loose ends of DNA are wrongly connected by P53, causing an increased cancer risk.

1. DNA-damaging free radicals are equivalent to a source of sparks which is always present naturally.
2. Cancer is equivalent the fire you get if the sparks are allowed to ignite the gasoline, i.e. if the free radicals are allowed to damage DNA without the damage being repaired.
3. Protein P53 is equivalent to a fire suppression system which is constantly damping out the sparks, or repairing the damaged DNA so that cancer doesn't occur.

In this way of thinking, the 'cause' of cancer will be down to a failure of a DNA repairing enzyme like protein P53 to repair the damage.

Dr Jane Orient, 'Homeland Security for Physicians', *Journal of American Physicians and Surgeons*, vol. 11, number 3, Fall 2006, pp. 75-9:

'In the 1960s, a group of activist physicians called Physicians for Social Responsibility (PSR) undertook to "educate the medical profession and the

world about the dangers of nuclear weapons," beginning with a series of articles in the *New England Journal of Medicine*. [Note that journal was publishing information for anti-civil defense propaganda back in 1949, e.g. the article in volume 241, pp. 647-53 of *New England Journal of Medicine* which falsely suggests that civil defense in nuclear war would be hopeless because a single burned patient in 1947 with 40% body area burns required 42 oxygen tanks, 36 pints of plasma, 40 pints of whole blood, 104 pints of fluids, 4,300 m of gauze, 3 nurses and 2 doctors. First, only unclothed persons in direct line of sight without shadowing can get 40% body area burns from thermal radiation, second, duck and cover offers protection in a nuclear attack warning, and G. V. LeRoy had already published, two years earlier, in *J.A.M.A.*, volume 134, 1947, pp. 1143-8, that less than 5% of burns in Hiroshima and Nagasaki were caused by building and debris fires. In medicine it is always possible to expend vast resources on patients who are fatally injured. In a mass casualty situation, doctors should not give up just because they don't have unlimited resources; as at Hiroshima and Nagasaki, they would need to do their best with what they have.] On its website, www.psr.org, the group boasts that it "led the campaign to end atmospheric nuclear testing." With this campaign, the linear no-threshold (LNT) theory of radiation carcinogenesis became entrenched. It enabled activists to calculate enormous numbers of potential casualties by taking a tiny risk and multiplying it by the population of the earth. As an enduring consequence, the perceived risks of radiation are far out of proportion to actual risks, causing tremendous damage to the American nuclear industry. ... Efforts to save lives were not only futile, but unethical: Any suggestion that nuclear war could be survivable increased its likelihood and was thus tantamount to warmongering, PSR spokesmen warned. ...

'For the mindset that engendered and enables this situation, which jeopardizes the existence of the United States as a nation as well as the lives of millions of its citizens, some American physicians and certain prestigious medical organizations bear a heavy responsibility.

'Ethical physicians should stand ready to help patients to the best of their ability, and not advocate sacrificing them in the name of a political agenda. **Even very basic knowledge, especially combined with simple, inexpensive advance preparations, could save countless lives.'**

Dr Theodore B. Taylor, *Proceedings of the Second Interdisciplinary Conference on Selected Effects of a General War*, DASIAC Special Report 95, July 1969, vol. 2, DASA-2019-2, AD0696959, page 298 (also [linked here](#)):

'I must just say that as far as I'm concerned I have had some doubts about whether we should have had a civil defense program in the past. I have no doubt whatsoever now, for this reason, that I've seen **ways in which the deterrent forces can fail to hold things off, so that no matter what our national leaders do, criminal organizations, what have you, groups of people over which we have no control whatsoever, can threaten other groups of people.'**

This point of Taylor is the key fact on the morality. Suppose we disarm and abandon nuclear power. That won't stop fallout from a war, terrorists, or a foreign reactor blast from coming. Civil defence knowledge is needed. Even when America has ABM, it will be vulnerable to wind carried fallout. No quantity of pacifist hot air will protect people against radiation.

Charles J. Hitch and Roland B. McKean of the RAND Corporation in their 1960 book *The Economics of Defense in the Nuclear Age*, Harvard University Press, Massachusetts, pp. 310-57:

'With each side possessing only a small striking force, a small amount of cheating would give one side dominance over the other, and the incentive to cheat and prepare a preventative attack would be strong ... With each side possessing, say, several thousand missiles, a vast amount of cheating would be necessary to give one side the ability to wipe out the other's striking capability. ... the more extensive a disarmament agreement is, the smaller the force that a violator would have to hide in order to achieve complete domination. Most obviously, "the abolition of the weapons necessary in a general or 'unlimited' war" would offer the most insuperable obstacles to an inspection plan, since the violator could gain an overwhelming advantage from the concealment of even a few weapons.'

Disarmament after World War I caused the following problem which led to World War II (reported by Winston S. Churchill in the London Daily Express newspaper of November 1, 1934):

'Germany is arming secretly, illegally and rapidly. A reign of terror exists in Germany to keep secret the feverish and terrible preparations they are making.'

British Prime Minister Thatcher's address to the United Nations General Assembly on disarmament on 23 June 1982, where she pointed out that in

Nuclear deterrence of conventional warfare, and protection against collateral civilian damage and contamination

the years since the nuclear attacks on Hiroshima and Nagasaki, 10 million people had been killed by 140 non-nuclear conflicts:

'The fundamental risk to peace is not the existence of weapons of particular types. It is the disposition on the part of some states to impose change on others by resorting to force against other nations ... Aggressors do not start wars because an adversary has built up his own strength. They start wars because they believe they can gain more by going to war than by remaining at peace.'

J. D. Culshaw, the then Director of the U.K. Home Office Scientific Advisory Branch, stated in his article in the Scientific Advisory Branch journal *Fission Fragments*, September 1972 (issue No. 19), classified 'Restricted':

'Apart from those who don't want to know or can't be bothered, there seem to be three major schools of thought about the nature of a possible Third World War ...

* 'The first group think of something like World War II but a little worse ...

* '... the second of World War II but very much worse ...

* 'and the third group think in terms of a catastrophe ...

'When the Armageddon concept is in favour, the suggestion that such problems exist leads to "way out" research on these phenomena, and it is sufficient to mention a new catastrophic threat [e.g., 10 years later this was done by Sagan with "nuclear winter" hype, which turned out to be fake because modern concrete cities can't produce firestorms like 1940s wooden-built areas of Hamburg, Dresden and Hiroshima] to stimulate research into the possibilities of it arising. The underlying appeal of this concept is that if one could show that the execution of all out nuclear, biological or chemical warfare would precipitate the end of the world, no one but a mad man would be prepared to initiate such a war. [However, as history proves, plenty of mad men end up gaining power and leading countries into wars.]'

J. K. S. Clayton, then Director of the U.K. Home Office Scientific Advisory Branch, stated in his introduction, entitled *The Challenge - Why Home Defence?*, to the 1977 Home Office Scientific Advisory Branch *Training Manual for Scientific Advisers*:

'Since 1945 we have had nine wars - in Korea, Malaysia and Vietnam, between China and India, China and Russia, India and Pakistan and between the Arabs and Israelis on three occasions. We have had confrontations between East and West over Berlin, Formosa and Cuba. There have been civil wars or rebellions in no less than eleven countries and invasions or threatened invasions of another five. Whilst it is not suggested that all these incidents could have resulted in major wars, they do indicate the aptitude of mankind to resort to a forceful solution of its problems, sometimes with success. ...'

It is estimated that Mongol invaders exterminated 35 million Chinese between 1311-40, without modern weapons. Communist Chinese killed 26.3 million dissenters between 1949 and May 1965, according to detailed data compiled by the Russians on 7 April 1969. The Soviet communist dictatorship killed 40 million dissenters, mainly owners of small farms, between 1917-59. Conventional (non-nuclear) air raids on Japan killed 600,000 during World War II. The single incendiary air raid on Tokyo on 10 March 1945 killed 140,000 people (more than the total for nuclear bombs on Hiroshima and Nagasaki combined) at much less than the \$2 billion expense of the Hiroshima and Nagasaki nuclear bombs! Non-nuclear air raids on Germany during World War II killed 593,000 civilians.

House of Lords debate *Nuclear Weapons: Destructive Power*, published in Hansard, 14 June 1988:

Lord Hailsham of Saint Marylebone: 'My Lords, if we are going into the question of lethality of weapons and seek thereby to isolate the nuclear as distinct from the so-called conventional range, is there not a danger that the public may think that Vimy, Passchendaele and Dresden were all right—sort of tea parties—and that nuclear war is something which in itself is unacceptable?'

Lord Trefgarne: 'My Lords, the policy of making Europe, or the rest of the world, safe for conventional war is not one that I support.'

House of Commons debate *Civil Defence* published in Hansard, 26 October 1983:

Mr. Bill Walker (Tayside, North): 'I remind the House that more people died at Stalingrad than at Hiroshima or Nagasaki. Yet people talk about fighting a conventional war in Europe as if it were acceptable. One rarely sees demonstrations by the so-called peace

movement against a conventional war in Europe, but it could be nothing but ghastly and horrendous. The casualties would certainly exceed those at Stalingrad, and that cannot be acceptable to anyone who wants peace'

On 29 October 1982, Thatcher stated of the Berlin Wall: 'In every decade since the war the Soviet leaders have been reminded that their pitiless ideology only survives because it is maintained by force. But the day comes when the anger and frustration of the people is so great that force cannot contain it. Then the edifice cracks: the mortar crumbles ... one day, liberty will dawn on the other side of the wall.'

On 22 November 1990, she said: 'Today, we have a Europe ... where the threat to our security from the overwhelming conventional forces of the Warsaw Pact has been removed; where the Berlin Wall has been torn down and the Cold War is at an end. These immense changes did not come about by chance. They have been achieved by strength and resolution in defence, and by a refusal ever to be intimidated.'

'The case for civil defence stands regardless of whether a nuclear deterrent is necessary or not. ... Even if the U.K. were not itself at war, we would be as powerless to prevent fallout from a nuclear explosion crossing the sea as was King Canute to stop the tide.' - U.K. Home Office leaflet, Civil Defence, 1982.

'... peace cannot be guaranteed absolutely. Nobody can be certain, no matter what policies this or any other Government were to adopt, that the United Kingdom would never again be attacked. Also we cannot tell what form such an attack might take. Current strategic thinking suggests that if war were to break out it would start with a period of conventional hostilities of uncertain duration which might or might not escalate to nuclear conflict. ... while nuclear weapons exist there must always be a chance, however small, that they will be used against us [like gas bombs in World War II]. ... as a consequence of war between other nations in which we were not involved fall out from nuclear explosions could fall on a neutral Britain. ... conventional war is not the soft option that is sometimes suggested. It is also too easily forgotten that in World War II some 50 million people died and that conventional weapons have gone on killing people ever since 1945 without respite.' - - **The Minister of State, Scottish Office (Lord Gray of Contin), House of Lords debate on Civil Defence (General Local Authority Functions) Regulations, Hansard, vol. 444, cc. 523-49, 1 November 1983.**

'All of us are living in the light and warmth of a huge hydrogen bomb, 860,000 miles across and 93 million miles away, which is in a state of continuous explosion.' - Dr Isaac Asimov.

'Dr Edward Teller remarked recently that the origin of the earth was somewhat like the explosion of the atomic bomb...' - Dr Harold C. Urey, *The Planets: Their Origin and Development*, Yale University Press, New Haven, 1952, p. ix.

'But compared with a supernova a hydrogen bomb is the merest trifle. For a supernova is equal in violence to about a million million million million hydrogen bombs all going off at the same time.' - Sir Fred Hoyle (1915-2001), *The Nature of the Universe*, Pelican Books, London, 1963, p. 75.

'In fact, physicists find plenty of interesting and novel physics in the environment of a nuclear explosion. Some of the physical phenomena are valuable objects of research, and promise to provide further understanding of nature.' - Dr Harold L. Brode, The RAND Corporation, 'Review of Nuclear Weapons Effects,' *Annual Review of Nuclear Science*, Volume 18, 1968, pp. 153-202.

'It seems that similarities do exist between the processes of formation of single particles from nuclear explosions and formation of the solar system from the debris of a [4 x 10²⁸ megatons of TNT equivalent, type Ia] supernova explosion. We may be able to learn much more about the origin of the earth, by further investigating the process of radioactive fallout from the nuclear weapons tests.' - **Dr Paul K. Kuroda (1917-2001)**, University of Arkansas, 'Radioactive Fallout in Astronomical Settings: Plutonium-244 in the Early Environment of the Solar System,' pages 83-96 of ***Radionuclides in the Environment: A Symposium Sponsored By the Division of Nuclear Chemistry and Technology At the 155th Meeting of the American Chemical Society, San Francisco, California, April 1-3, 1968***, edited by Symposium Chairman Dr Edward C. Freiling (1922-2000) of the U.S. Naval Radiological Defense Laboratory, Advances in Chemistry Series No. 93, American Chemical Society, Washington, D.C., 1970.

Dr Paul K. Kuroda (1917-2001) in 1956 correctly predicted the existence of water-moderated natural nuclear reactors in flooded uranium ore seams, which were discovered in 1972 by French physicist Francis Perrin in three ore deposits at Oklo in Gabon, where sixteen sites operated as natural nuclear reactors with self-sustaining nuclear fission 2,000 million years ago, each lasting several hundred thousand years, averaging 100 kW. The radioactive waste they generated remained in situ for a period of 2,000,000,000 years without escaping. They were discovered during

investigations into why the U-235 content of the uranium in the ore was only 0.7171% instead of the normal 0.7202%. Some of the ore, in the middle of the natural reactors, had a U-235 isotopic abundance of just 0.440%. Kuroda's brilliant paper is entitled, 'On the Nuclear Physical Stability of the Uranium Minerals', published in the *Journal of Chemical Physics*, vol. 25 (1956), pp. 781–782 and 1295–1296.

A type Ia supernova explosion, always yielding 4×10^{28} megatons of TNT equivalent, results from the critical mass effect of the collapse of a white dwarf as soon as its mass exceeds 1.4 solar masses due to matter falling in from a companion star. The degenerate electron gas in the white dwarf is then no longer able to support the pressure from the weight of gas, which collapses, thereby releasing enough gravitational potential energy as heat and pressure to cause the fusion of carbon and oxygen into heavy elements, creating massive amounts of radioactive nuclides, particularly intensely radioactive nickel-56, but half of all other nuclides (including uranium and heavier) are also produced by the **'R' (rapid) process of successive neutron captures by fusion products in supernovae explosions**. Type Ia supernovae occur typically every 400 years in the Milky Way galaxy. On 4 July 1054, Chinese astronomers observed in the sky (without optical instruments) the bright supernova in the constellation Taurus which today is still visible as the Crab Nebula through telescopes. The Crab Nebula debris has a diameter now of 7 light years and is still expanding at 800 miles/second. The supernova debris shock wave triggers star formation when it encounters hydrogen gas in space by compressing it and seeding it with debris; bright stars are observed in the Orion Halo, the 300 light year diameter remains of a supernova. It is estimated that when the solar system was forming 4,540 million years ago, a supernova occurred around 100 light years away, and the heavy radioactive debris shock wave expanded at 1,000 miles/second. Most of the heavy elements including iron, silicon and calcium in the Earth and people are the stable end products of originally radioactive decay chains from the space burst fallout of a 7×10^{26} megatons thermonuclear explosion, created by fusion and successive neutron captures after the implosion of a white dwarf; a supernova explosion.

How would a 10^{55} megaton hydrogen bomb explosion differ from the **big bang**? Ignorant answers biased in favour of curved spacetime (ignoring quantum gravity!) abound, such as claims that explosions can't take place in 'outer space' (disagreeing with the facts from nuclear space bursts by Russia and America in 1962, not to mention natural supernova explosions in space!) and that explosions produce sound waves in air by definition! There are indeed major differences in the nuclear reactions between the big bang and a nuclear bomb. But it is helpful to notice the solid physical fact that implosion systems suggest the mechanism of gravitation: in implosion, TNT is well-known to produce an *inward* force on a bomb core, but Newton's 3rd law says there is an equal and opposite reaction force *outward*. In fact, you can't have a radially outward force without an inward reaction force! It's the rocket principle. The rocket accelerates (with force $F = ma$) *forward* by virtue of the recoil from accelerating the exhaust gas (with force $F = -ma$) in the *opposite* direction! Nothing massive accelerates without an equal and opposite reaction force. Applying this *fact* to the **measured $6 \times 10^{-10} \text{ ms}^{-2} \sim Hc$ cosmological acceleration of matter radially outward** from observers in the universe which **was predicted accurately in 1996** and later observationally discovered in 1999 (by Perlmutter, et al.), we find an outward force $F = ma$ and inward reaction force by the 3rd law. **The inward force allows quantitative predictions, and is mediated by gravitons, predicting gravitation in a checkable way (unlike string theory, which is just a landscape of 10^{500} different perturbative theories and so can't make any falsifiable predictions about gravity)**. So it seems as if nuclear explosions do indeed provide helpful analogies to natural features of the world, and the mainstream lambda-CDM model of cosmology - with its force-fitted unobserved *ad hoc* speculative 'dark energy' - ignores and sweeps under the rug major quantum gravity effects which increase the physical understanding of particle physics, particularly force unification and the relation of gravitation to the existing electroweak SU(2) x U(1) section of the Standard Model of fundamental forces.

Richard Lieu, Physics Department, University of Alabama, 'Lambda-CDM cosmology: how much suppression of credible evidence, and does the model really lead its competitors, using all evidence?', <http://arxiv.org/abs/0705.2462>.

Even Einstein grasped the possibility that general relativity's lambda-CDM model is at best just a classical approximation to quantum field theory, at the end of his life when he wrote to Besso in 1954:

'I consider it quite possible that physics cannot be based on the [classical differential equation] field principle, i.e., on continuous structures. In that case, nothing remains of my entire castle in the air, [non-quantum] gravitation theory included ...'

'Science is the organized skepticism in the reliability of expert opinion.' - Professor Richard P. Feynman (quoted by Professor Lee Smolin, *The Trouble with Physics*, Houghton-Mifflin, New York, 2006, p. 307).

'The expression of dissenting views may not seem like much of a threat to a powerful organization, yet sometimes it triggers an amazingly hostile

response. The reason is that a single dissenter can puncture an illusion of unanimity. ... Among those suppressed have been the engineers who tried to point out problems with the Challenger space shuttle that caused it to blow up. More fundamentally, suppression is a denial of the open dialogue and debate that are the foundation of a free society. Even worse than the silencing of dissidents is the chilling effect such practices have on others. For every individual who speaks out, numerous others decide to play it safe and keep quiet. More serious than external censorship is the problem of self-censorship.'

— Professor Brian Martin, University of Wollongong, 'Stamping Out Dissent', Newsweek, 26 April 1993, pp. 49-50

In 1896, Sir James Mackenzie-Davidson asked Wilhelm Röntgen, who discovered X-rays in 1895: 'What did you think?' Röntgen replied: 'I did not think, I investigated.' The reason? Cathode ray expert J. J. Thomson in 1894 saw glass fluorescence far from a tube, but due to prejudice (expert opinion) he avoided investigating that X-ray evidence! 'Science is the organized skepticism in the reliability of expert opinion.' - Richard Feynman, in Lee Smolin, *The Trouble with Physics*, Houghton-Mifflin, 2006, p. 307.

Mathematical symbols in this blog: your computer's browser needs access to standard character symbol sets to display Greek symbols for mathematical physics. If you don't have the symbol character sets installed, the density symbol ' ρ ' (*Rho*) will appear as 'r' and the ' π ' (*Pi*) symbol will appear as 'p', causing confusion with the use of 'r' for radius and 'p' for momentum in formulae. This problem exists with Mozilla Firefox 3, but not with Microsoft Explorer which displays Greek symbols.

About Me



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From 1945-62, America tested 216 nuclear weapons in the atmosphere, totalling 154 megatons, with a mean yield of 713 kilotons

From 1949-62, Russia tested 214 nuclear weapons in the atmosphere, totalling 281 megatons, with a mean yield of 1.31 megatons

From 1952-8, Britain tested 21 nuclear weapons in the atmosphere, totalling 10.8 megatons, with a mean yield of 514 kilotons

From 1960-74, France tested 46 nuclear weapons in the atmosphere, totalling 11.4 megatons, with a mean yield of 248 kilotons

From 1964-80, China tested 23 nuclear weapons in the atmosphere, totalling 21.5 megatons, with a mean yield of 935 kilotons

In summary, from 1945-80, America, Russia, Britain, France and China tested 520 nuclear weapons in the atmosphere, totalling 478.7 megatons, with a mean yield of 921 kilotons

Mean yield of the 5,192 nuclear warheads and bombs in the deployed Russian nuclear stockpile as of January 2009: 0.317 Mt. Total yield: 1,646 Mt.

Mean yield of the 4,552 nuclear warheads and bombs in the deployed U.S. nuclear stockpile as of January 2007: 0.257 Mt. Total yield: 1,172 Mt.

For diffraction damage where damage areas scale as the two-thirds power of explosive yield, this stockpile's area damage potential can be compared to the 20,000,000 conventional bombs of 100 kg size (2 megatons of TNT equivalent total *energy*) dropped on Germany during World War II: (Total nuclear bomb blast diffraction damaged ground *area*)/(Total conventional blast diffraction damaged ground *area* to Germany during World War II) = $[4,552 \cdot (0.257 \text{ Mt})^{2/3}] / [20,000,000 \cdot (0.0000001 \text{ Mt})^{2/3}] = 1,840/431 = 4.3$. Thus, although the entire U.S. stockpile has a TNT *energy* equivalent to 586 times that of the 2 megatons of conventional bombs dropped on Germany in World War II, it is only capable of causing 4.3 times as much diffraction type damage area, because *any given amount of explosive energy is far more efficient when distributed over many small explosions than in a single large explosion! Large explosions are inefficient because they cause unintended collateral damage, wasting energy off the target area and injuring or damaging unintended targets!*

In a controlled sample of 36,500 survivors, 89 people got leukemia over a 40 year period, above the number in the unexposed control group. (Data: *Radiation Research*, volume 146, 1996, pages 1-27.) Over 40 years, in 36,500 survivors monitored, there were 176 leukemia deaths which is 89 more than the control (unexposed) group got naturally. There were 4,687 other cancer deaths, but that was merely 339 above the number in the control (unexposed) group, so this is statistically a much smaller rise than the leukemia result. Natural leukemia rates, which are very low in any case, were increased by 51% in the irradiated survivors, but other cancers were merely increased by just 7%. Adding all the cancers together, the total was 4,863 cancers (virtually all natural cancer, nothing whatsoever to do with radiation), which is just 428 more than the unexposed control group. Hence, the total increase over the natural cancer rate due to bomb exposure was only 9%, spread over a period of 40 years. There was no increase whatsoever in genetic malformations.

There should be a note here about how unnatural radioactive pollution is (not) in space: the earth's atmosphere is a radiation shield equivalent to being protected behind a layer of water 10 metres thick. This reduces the cosmic background radiation by a factor of 100 of what it would be without the earth's atmosphere. Away from the largely uninhabited poles, the Earth's magnetic field also protects us against charged cosmic radiations, which are deflected and end up spiralling around the magnetic field at high altitude, in the Van Allen trapped radiation belts. On the Moon, for example, there is no atmosphere or significant magnetic field so the natural background radiation exposure rate at solar minimum is 1 milliRoentgen per hour (about 10 microSieverts/hour) some 100 times that on the Earth (0.010 milliRoentgen per hour or about 0.10 microSieverts/hour). The Apollo astronauts visiting the Moon wore dosimeters and they received an average of 275 milliRoentgens (about 2.75 milliSieverts) of radiation (well over a year's exposure to natural background at sea level) in over just 19.5 days. It is a lot more than that during a solar flare, which is one of the concerns for astronauts to avoid (micrometeorites are another concern in a soft spacesuit).

The higher up you are above sea level, the less of the atmosphere there is between you and space, so the less shielding you have to protect you from the intense cosmic space radiations (emitted by thermonuclear reactors we call 'stars', as well as distant supernovae explosions). At sea level, the air above you constitutes a radiation shield of 10 tons per square metre or the equivalent of having a 10 metres thick water shield between you and outer space. As you go up a mountain or up in an aircraft, the amount of atmosphere between you and space decreases, thus radiation levels increase with altitude because there is less shielding. The normal background radiation exposure rate shoots up by a factor of 20, from 0.010 to 0.20 milliRoentgens per hour, when any airplane ascends from sea level to 36,000 feet cruising altitude. (The now obsolete British Concorde supersonic transport used to maintain radiation-monitoring equipment so that it could drop to lower-altitude flight routes if excessive cosmic radiation due to solar storms were detected.) Flight aircrew get more radiation exposure than many nuclear industry workers at nuclear power plants. Residents of the high altitude city of Denver get 100 milliRoentgens (about 1 milliSievert) more annual exposure than a resident of Washington, D.C., but the mainstream anti-radiation cranks don't campaign for the city to be shut to save kids radiation exposure, for mountain climbing to be banned, etc.!

1994 revised Introduction to Kearny's Nuclear War Survival Skills, by Dr Edward Teller, January 14, 1994:

'If defense is neglected these weapons of attack become effective. They become available and desirable in the eyes of an imperialist dictator, even if his means are limited. Weapons of mass destruction could become equalizers between nations big and small, highly developed and primitive, if defense is neglected. If defense is developed and if it is made available for general prevention of war, weapons of aggression will become less desirable. Thus defense makes war itself less probable. ... One psychological defense mechanism against danger is to forget about it. This attitude is as common as it is disastrous. It may turn a limited danger into a fatal difficulty.'

Advice of Robert Watson-Watt (Chief Scientist on the World War II British Radar Project, defending Britain against enemy attacks): 'Give them the third best to go on with, the second best comes too late, the best never comes.'

From Wikipedia (a source of groupthink): 'Groupthink is a type of thought exhibited by group members who try to minimize conflict and reach consensus without critically testing, analyzing, and evaluating ideas. Individual creativity, uniqueness, and independent thinking are lost in the pursuit of group cohesiveness, as are the advantages of reasonable balance in choice and thought that might normally be obtained by making decisions as a group. During groupthink, members of the group avoid promoting viewpoints outside the comfort zone of consensus thinking. A variety of motives for this may exist such as a desire to avoid being seen as foolish, or a desire to avoid embarrassing or angering other members of the group. Groupthink may cause groups to make hasty, irrational decisions, where individual doubts are set aside, for fear of upsetting the group's balance.'

Links

- ◆ [Google News](#)
- ◆ [Dr Carl E. Baum's EMP theory and interaction notes](#)
- ◆ [The Atomic Heritage Foundation](#)
- ◆ [Radiation Effects Research Foundation lumps data together to cover up benefits of low dose radiation in Hiroshima and Nagasaki Life Span Study!](#)
- ◆ [DTRA \(Defense Threat Reduction Agency\) Nuclear testing histories \(PDF files\)](#)
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- ◆ [Jerry Emanuelson's review of EMP facts, including the direct dependence of the EMP on the Earth's natural magnetic field strength at the burst location](#)
- ◆ [Essays by 1950s American nuclear weapon effects test \(and neutron bomb design\) experts, discrediting anti-civil defence propaganda](#)
- ◆ [Neutron bomb inventor Samuel Cohen's 2006 book on the history of the neutron bomb, the most moral weapon ever invented due to its purely military deterrent capabilities, and the pseudo-scientific propaganda war he has had to endure from the enemies of deterrence](#)
- ◆ [Karl-Ludvig Grønhaug's EMP reports page with useful PDF downloads on prompt EMP and MHD-EMP measurements from nuclear tests \(Norwegian language\)](#)
- ◆ [Colonel Derek L. Duke's factual book on nuclear weapons accidents, *Chasing Loose Nukes, as told to Fred Dungan*](#)
- ◆ [The H-Bomb and the birth of the Universe: 'For 100 Million years after time began, the universe was dark as pitch. The clouds of hydrogen condensed into huge nuclear fireballs. That moment-when the universe first lit up-was the moment of creation that matters...'](#)
- ◆ [American *EMP Interaction* manual: comprehensive theory of both the EMP source mechanism and the EMP pick-up in cables and antenna by electromagnetic inductance \(30 MB PDF file\)](#)
- ◆ [British Mission to Japan, *The Effects of the Atomic Bombs at Hiroshima and Nagasaki*, H. M. Stationery Office, London, 1946 \(high quality 42.5 MB pdf file\).](#)
- ◆ [1950 edition \(high quality 82.7 MB PDF file\) of U.S. Department of Defense book *The Effects of Atomic Weapons*](#)
- ◆ [1957 edition \(high quality 90.8 MB PDF file\) of subsequently deleted sections on nuclear tests of civil defense countermeasures from U.S. Department of Defense book *The Effects of Nuclear Weapons*](#)
- ◆ [1957 edition \(low quality 30.6 MB PDF file\) of entire U.S. Department of Defense book *The Effects of Nuclear Weapons*](#)
- ◆ [1962/64 edition \(high quality 188 MB PDF file\) of major revised sections in the U.S. Department of Defense book *The Effects of Nuclear Weapons*](#)
- ◆ [1962/64 edition \(high quality 43.8 MB PDF file\) of 74 pages of subsequently deleted material dealing with thermal ignition of houses at nuclear tests and civil defense countermeasures chapter, from the U.S. Department of Defense book *The Effects of Nuclear Weapons*](#)
- ◆ [1977 edition \(single 36.8 MB PDF file\) of U.S. Department of Defense book *The Effects of Nuclear Weapons*](#)
- ◆ [Bill Forstchen, "One Second After" book about EMP attack risk and its effects on USA.](#)
- ◆ [U.S. Department of Energy Opennet Documents Online \(includes many Nevada and Pacific nuclear test reports as PDF files\)](#)
- ◆ [Defense Technical Information Center \(DTIC\)'s Scientific and Technical Information Network \(STINET\) Service \(other declassified Nevada and Pacific test reports\)](#)
- ◆ [Highlights from ABM testing history](#)

◆ THAAD Goes Another ABM Test

◆ Alex Wellerstein's Restricted Data blog contains some interesting news (but beware of his uncritical use of unobstructed dry desert and nude skin thermal radiation and other effects predictions from the 1977 edition of Glasstone and Dolan; he deletes critically objective comments and pretends that honest criticisms of propaganda as being ignorant deception are rude as an excuse for ignoring the facts and refusing to engage in objective discussion of controversial aspects of this topic; basically if you pay homage and engage in groupthink bias you may be tolerated).

◆ Carey Sublette's Nuclear Weapon Archive (it contains errors from Chuck Hansen's compilation, and it is concentrated on bomb building, not on civil defence countermeasure evaluations done at nuclear tests; note that Chuck Hansen's books and CDs give a false quotation from Neil O' Hines's book *Proving Ground* on the effects of the 1952 Mike explosion on nearby Engebi Island, where Hines later in the book states that the native rats in fact *survived the intense close-in blast, heat and fallout under a few unches of soil, despite the initial ignorant belief that they could not have survived!!!*)

- Quantum Field Theory
- Los Alamos Science journal
- Excellent particle physics gauge theory (fundamental force interaction) issue of Los Alamos Science journal
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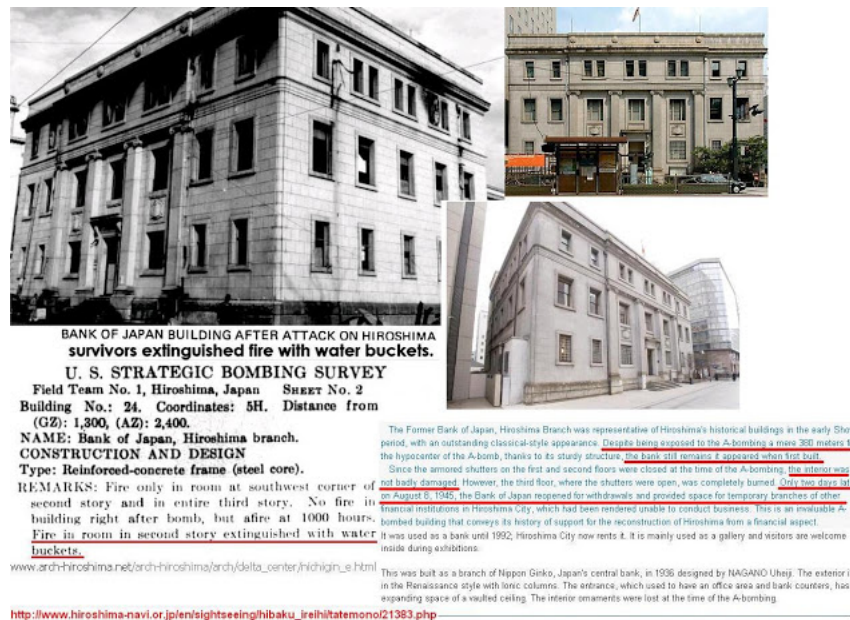
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The Bank of Japan, Hiroshima, survived 380 m from Ground Zero, within the firestorm area, when fires were extinguished by water buckets by its survivors, the majority of people in the building having survived. Secret US Strategic Bombing Survey report proves civil defense for modern concrete buildings is effective. The building was reopened as a bank on 8 August, merely two days after nuclear attack, and continued in use as a bank until 1992. It remains in Hiroshima. This beautifully designed and sturdy reinforced concrete building was designed in 1936 by Nagano Uheiji.